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CELEBRATING THE APPLE II

II ALIVE

CELEBRATING THE APPLE II



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CRASH & BURN: DEALING WITH ERRORS & CRASHES PART 2

PAST PERFECT: THE HISTORY OF THE APPLE II

INTERVIEW WITH MIKE WESTERFIELD OF THE BYTEWORKS

RIGHT CONNECTIONS: APPLE II TO IBM AND BACK

SOUND LOGIC

A LOOK AND LISTEN AT THE WORLD OF APPLE IIGS SOUND

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Video: Our 1-hour video takes you from installation of System 6 to moving through the Finder with speed and agility.

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SuperDataPath: Remembers a default data directory for your programs so you don't have to change folders every time you launch an application.

HotKeys: Add dozens of functions to your function keys (on an extended keyboard) or to your numeric keypad.

CDEV Alias: Add any frequently-used Control Panel function (CDEV) directly to the Apple menu.

CPU & Memory Use: Shows visually how much of your computer's resources are being used at any time.

SelectIcons: Select icons in the front window based on partial filename, filetype, modification date, and more!

PrintCatalog: Prints and old-style directory listing on your printer, including filename, filetype, and more.

Encrypt: Save your data from prying eyes! Encrypt creates a password-protected copy of any file.

FilePeeker: Preview the contents of graphics, text, and sound files—and more—without having to launch a separate application!

WorkSet: Remembers a group of files and opens them all at once, with one double-click! Open a group of AppleWorks documents—or a group of folders—or a group of anything—all at once!

FileCompare: Check seemingly identical files for differences you might have missed comparing them visually.

ButtonBar: Places a button bar on the desktop with user programable buttons.

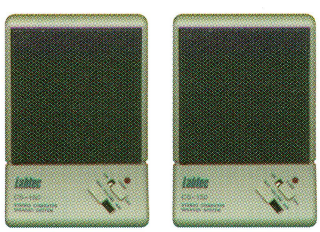
SizeUp: Calculates the size of the currently selected files, including files residing in selected folders, from within the Finder. SizeUp also tells you the total number of files or folders selected.

LaunchList: Provides a list of applications in a window when running the Finder. The LaunchList window can be configured to contain any application, or all of your applications.

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in this issue



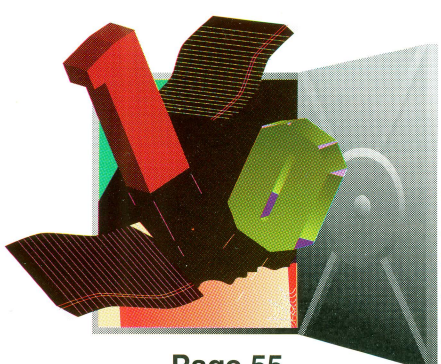
Page 28



Page 32



Page 41



Page 55

features

Sound Logic: A Look & Listen at the World of Apple IIgs Sound 28

BY NATE TROST Your Apple IIGS has a sophisticated Ensoniq Digital Oscillator Chip, giving it the most powerful sound-generation capabilities of any Apple II. Discover the hardware and software you need to take full advantage of its explosive potential.

Holiday Shopping Guide 32

BY DOUG CUFF We checked our list twice before bringing you this cornucopia of stocking stuffers. Divided into categories by price, you're sure to find something on this list which will bring joy to the heart of the computer nut in your life, without the heartbreak of reindeer droppings.

Crash and Burn Part 2 34

BY NATHANIEL SLOAN Learn to identify and recover from different kinds of crashes, lock-ups, and errors. Troubleshoot your hardware and software without shooting yourself in the foot. We untangle the often cryptic symptoms of Apple II nuclear meltdown in this second of two articles.

An Interview With Mike Westerfield.....48

BY TARA DILLINGER Learn about killer whales, flying turtles, computer shrinks, Lubarsky's Rule of Cybernetic Entomology, and the Cortland Programmer's Workshop as our Interview Editor profiles a man who makes programs for people who make programs.

departments

Editorial.....5
Kansas City Heat

Letters 11

News 13
Items of Interest

Test Drives 15
Learn To Program In C & Express 2.1

Head Of The Class 17
Utilizing Apple II Software In Thematic Unit

Macro Exchange 18

Ask Mr. Tech 19
Questions & Answers

AppleWorks At Large 21
Data Basics: Part II

Shareware Spy 25

Right Connections.....38
MS-DOS Connections

Art Gallery 41
Graphics Modes & Dithering

Print To Publish.....45
Newsletter Design Basics

Media á la Mode.....51
Total Multimedia Control With HyperStudio

Rumor Monger 54

Entertain Me 55
Rediscovering the Lost Treasures of Infocom

MarketPlace.....58

Computer Clubs 60

II Much Fun 62

THE WHITE RABBIT GOES ELECTRIC

by Jerry Kindall, Editor

Putting together a magazine the size of *II Alive* is a lot of work. Putting it together on schedule is sometimes even tougher. As I write this, it's early November—this issue of *II Alive* is just a little bit behind schedule. (By now, the magazine should already be in the mail, and at least a few of you should have received it already.) I feel like the White Rabbit from Alice in Wonderland, rushing about and crying, "I'm late! I'm late!"

The main reason for this is, of course, AppleWorks 4, which itself ran about a month longer than we expected. Between version 3 and version 4, the manual gained about a hundred pages of new material, had revisions on nearly every page, and needed to be completely redesigned (including all new screen shots and illustrations). I did most of the work on the manual and the other AppleWorks 4 printed materials, with able assistance from our art department. The reference manual alone ended up being a whopping 536 pages long—that's more pages than an entire year of *II Alive.*

When all the AppleWorks dust settled, the editorial deadline was upon us—and we hadn't even started yet. We had to get an issue out, pronto. Luckily, we had a secret weapon. Three of them, actually.

The first is Ellen Konowitz Rosenberg. Ellen is best known for her stint editing *A2-Central's* paper edition. I'd been looking for someone to help me with editing *II Alive,* and Ellen was not only eminently qualified for the position but, after the demise of the paper edition of *A2-Central,* she was also available. Ellen proved invaluable in putting this issue together. We split the editing duties on this issue so we could bring you *II Alive* on something remotely resembling a timely basis, but Ellen, in her Managing Editor role, will be doing most of the work of getting articles and editing them for publication in future issues. She'll also be doing our Shareware Spy column, and has arranged to make the shareware disks mentioned in the column available for a nominal copying fee. Ellen lives in Texas.

Doug Cuff, our first Contributing Editor, is a jack-of-all-trades. He gives the impression of knowing something about absolutely everything (as evidenced by his two articles in this issue). It's a trick, of course, but a clever one—Doug's smart enough to know what he doesn't know, and he not only knows how to find the answers, he goes the extra mile to obtain and verify his facts. His willingness and ability to do research on any subject earns him a spot as a regular contributor to this magazine. Expect to see his name quite a bit in these pages in the coming months. Doug is also the editor of *GEnieLamp A2,* an electronic publication that covers the Apple II Roundtable on GEnie. Doug lives in Ontario, Canada.

And last—but hardly least—there's Tara Dillinger, who earned a brief mention in last issue's editorial for her vocal performance at KansasFest in honor of Tom Weishaar. Among her many talents is the ability to get people to "open up" in a one-on-one situation. This makes her the perfect choice for Interview Editor. Tara's first interview, with The Byte Works' Mike Westerfield, appears in this issue. She also hosts an online talk show, in which she regularly interviews Apple II notables, in GEnie's A2 RoundTable. Tara lives in North Carolina.

Obviously, with our editors spread across the continent, coordinating an issue has the potential to become a real headache. It simply wouldn't be possible without telecommunications. Ellen, Doug, Tara and I all have GEnie accounts, and we exchange electronic mail (and other communications) regularly. From time to time you'll even find all four of us in an electronic "room" (a Real Time Conference in GEnie-speak) just chatting with folks.

I've been trying to make this clear, without belaboring the point, in my ongoing "Modem Nation" column, but I've never really come out and said this plainly: if you want support for your Apple II, you need a modem and a subscription to GEnie or some other online service with major Apple II support. Your local user group may only have a handful of Apple II users left, and you already know how hard it is to find Apple II products in local stores. There are still plenty of us Apple II fanatics left, but we're scattered across the country. And the best way to get in touch with others of our own kind is via modem.

The Apple telecommunity is a valuable resource. It's not a luxury; it's not just for computer geeks. (You'd be amazed at the number of "just plain folks" who show up in GEnie's Chat Lines on a daily basis.) Keeping "plugged in" is a necessity for Apple II life in the '90s. Getting online is more affordable than ever and has been streamlined to the point where anyone can do it without having to worry about more than which cable gets plugged into which outlet. I used to say that if you weren't online, you're missing a lot—but sooner than you think, you'll be missing pretty much everything.

In addition to the new staffers, I'd like to give credit where due to Audrey Wolfe, who designs each issue of *II Alive* along with Carl Sperber, Paul Sheppard, and Marcy Schwartzberg, who provide illustrations and other useful tidbits. Jeff Hurlburt of Texas has been our Review Editor for the last several issues, and has continually provided us with in-depth assessments of new products. And finally, a round of applause for Craig Baetz, who handles the subscription list. And, of course, we can't forget our publisher, Joe Gleason, who had the idea and gave me the chance to make it happen.

With this team, we're committed to bringing you the best Apple II coverage anywhere on the planet—in a timely matter. Thanks to telecommunications, the white rabbit is finally back on schedule. ■

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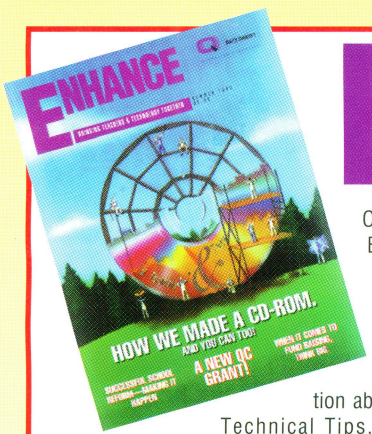
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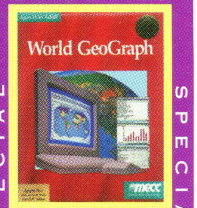
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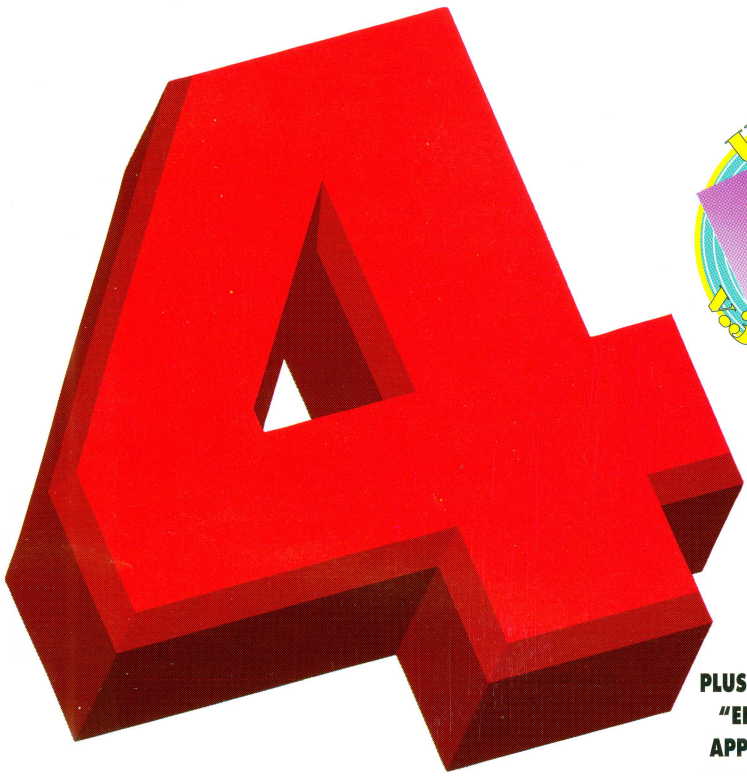
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PLUS FREE VIDEO "ENHANCING APPLEWORKS"
(WHILE SUPPLIES LAST)

EVEN EASIER TO USE

Making AppleWorks, an already friendly program, even friendlier, was something we thought about carefully. We had to be careful that what we were doing was REALLY making AppleWorks easier. We think we succeeded. For example, AppleWorks 4.0 can remember what order you used for each of your reports and will automatically sort the data base for you. The Spreadsheet now features a pop-up list of functions so users don't have to remember codes when entering formulas. The Word Processor uses distinctive symbols for formatting codes (instead of just carets) so boldface and underline can be recognized at a glance, instead of requiring the cursor to be on the formatting code to read it. The "Change Disk" menu allows users to display disk names by pressing OA-? instead of requiring them to know what slot and drive their data disk is in. "Add Files" displays text files and automatically loads them as word processor files instead of requiring users to go to a separate "New File" menu. The Word Processor lets you see and edit tab rulers right in the document. AppleWorks 4.0 even takes away the worry of saving your files with its Auto-Save function.

MORE COOL STUFF

Other major features include built-in support for HP's popular Deskjet printers, faster display and finds in the Data Base, split screen capability in the Word Processor, and data math functions in the Spreadsheet. The Data Base will have improved import and export

AppleWorks, the way it should be.

30 DAY FREE TRIAL

In 1988, AppleWorks seemed to have reached its pinnacle with the release of version 3.0. But you weren't satisfied and either were we. That's why Quality Computers, and AppleWorks veterans Randy Brandt and Dan Verkade have developed AppleWorks 4.0—the most extensive upgrade in AppleWorks history.

ONE TOUCH COMPUTING

How would you like to automate AppleWorks? You can with AppleWorks 4.0. That's because AppleWorks 4.0 features dozens of built-in automatic functions that you can do with just a keypress. Imagine being able to set up and print an envelope automatically, or open a new data base with pre-formatted fields by pressing a key or two. There's lots of others just like it, and they're easy with AppleWorks 4.0!

TRUE INTEGRATION

Integration, always AppleWorks' strong suit, will become tighter than ever with new features to allow the Word Processor to access data base files, the Spreadsheet to access other spreadsheet files, and the Data Base to access word processor, data base, and spreadsheet files. For example, AppleWorks 4.0 will allow users to create a data base of names and addresses, then "link" the Data Base with a word processor file. Using the glossary function, AppleWorks 4.0 can look up and import an address directly into the current word processing document—without switching modules, copying, or manually formatting. You can also import categories from other data bases (and cells from spreadsheets) and to export information to other data bases, providing the Data Base module with relational capabilities.

APPLEWORKS 4.0
PLUS FREE VIDEO

UPGRADES **$79.95**

from version 3 5.25"	
from version 3 3.5"	79.95
from version 2.0, 2.1 5.25"	99.95
from version 2.0, 2.1 3.5"	99.95
from version 1 5.25"	119.95
from version 1 3.5"	119.95
10-Pack	499.95
50 User Site License	19.00/CPU

NEW INSTALLS

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Quality Computers™

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School P.O's by phone, fax or mail

"It has exceeded my expectations. Smooth, powerful, professional!"

facilities for exchanging data with other computers, and will feature spreadsheet-style formulas in calculated fields. A global auto-save feature, available in all AppleWorks modules, will protect users' work from power failures; and a QuickPath menu will let users set up a menu of their most frequently-used directories.

Because AppleWorks 4.0 includes TimeOut, adding useful enhancements is easier than ever. In fact, you can even install most enhancements without leaving AppleWorks. *See Pages 38 & 39 for available enhancements.*

TRUE TO ITS HERITAGE

AppleWorks 4.0 will remain true to the AppleWorks spirit. Menus will remain easy to navigate; commands will continue to be simple-to-remember Apple-key combinations; help will still be available with a single keypress; all previous functions will remain the same.

FREE ENHANCING APPLEWORKS VIDEO!

AppleWorks 4.0 will ship October 1, but you can order your copy now. While supplies last, you can get the video "Enhancing AppleWorks" FREE!

KEY FEATURES OF APPLEWORKS 4.0

DESKTOP

- Three desktops allow up to 36 files
- "Add files to Desktop" lists up to 255 files instead of 170
- "Add files" automatically converts text files to word processor files
- "Add to clipboard" option allows you to append material to the clipboard
- Independent clipboards for Word Processor, Database, and Spreadsheet modules
- Auto-save feature saves files after a preset number of minutes
- Five printers may be defined instead of three
- Built-in support for Hewlett-Packard DeskJet printers
- QuickPath feature allows you to choose from a pre-defined list of path names
- "Change disk" menu shows volume names when OA-? is pressed

WORD PROCESSOR

- Split-screen function
- Improved mail-merge & find options
- Distinct symbols for formatting options (instead of all carets)
- New glossary feature allows easy entry of addresses and other info from data bases

DATA BASE

- 60 categories per record instead of 30
- 30 reports per file instead of 20
- Selection rules can be imported from a report format
- Faster display on large files when selection rules are active
- Lightning-fast finds in sorted categories (binary search)
- Reports automatically sorted before printing
- Date categories support years from 1000 AD to 9999 AD
- Export/import character-delimited text files for transfer to other programs
- Formulas allow spreadsheet-style calculations in data base files
- Categories can be imported from other data base and spreadsheet files and exported to other data base files

SPREADSHEET

- Spreadsheet formulas can refer to cells in other spreadsheets
- Date math features make it easier to calculate the number of days between two dates
- Titles can be defined to be printed at the top of each page
- New find option allows searches for numbers and formulas by rows or columns
- Pop-up list allows choosing functions from a menu
- New functions include ALERT, DATE, FIND, JOIN, LC, LEN, MID, TEXT, UC, VAL

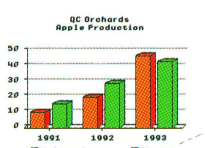
ULTRAMACROS

- UltraMacros run-time (playback-only) feature built in
- UltraMacros programs selectable from TimeOut menu

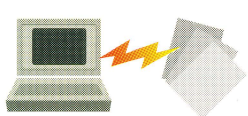
SYSTEM REQUIREMENTS

- Requires 128K RAM, IIe or better (IIc, IIc+, IIGS). 256K RAM, enhanced IIe recommended (required for use of macro player). TimeOut Manager, Init Manager, and Macro player built in; 3.5" and 5.25" disks included.

COMING SOON for APPLEWORKS USERS



TimeOut SuperGraph for the IIGS

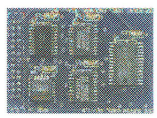


TimeOut FAX

FEDERAL EXPRESS *Ask For Overnight Delivery*

"My Mac-using friends are jealous!"

Get more from AppleWorks 4.0 with these enhancements—and SAVE



32K IMAGEWRITER BUFFER

This internal 32K buffer for older model ImageWriter II's can store a 10-page text document inside the printer. No more waiting for the printer to finish..... **$24.95**

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Q-RAM IIe

End disk swapping. Get more done. Load ALL of AppleWorks 4.0 into memory with this 1 MEG memory board at a fantastic price. **$89.95**

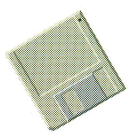
when you order it with AppleWorks 4.0



Q-RAM IIGS

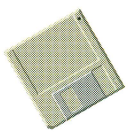
A 4 MEG RAM powerhouse for your Apple IIGS that lets you load ALL of AppleWorks 4.0 into memory, or set up a convenient RAM disk..... **$179.95**

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ONE-TOUCH COMMANDS DISK

AppleWorks 4.0 comes with dozens of one-touch functions. This disk is packed with even more..... **$14.95**



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AfterWork runs inside AppleWorks to give you a variety of attractive and fun screen savers that look great while preventing screen damage. **$24.95**

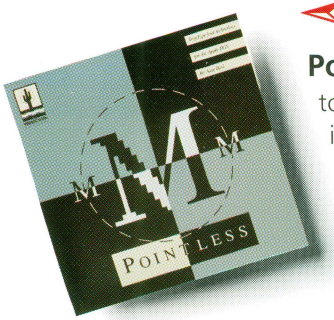
The icon above is symbolic of the effects that are available

1-800-777-3642

The Best of the West

Since 1990, WestCode Software has had one goal – to make the best software for your Apple II computer. And, now for a limited time, we're offering the best prices ever on our popular products.

Fantastic looking text on your printer.



Pointless 2.0 All your documents will look better than ever before, without unsightly hard-to-read jagged text. Pointless brings TrueType font technology to your Apple IIGS, providing impressive laser-sharp text on your ImageWriter, StyleWriter, DeskJet, LaserJet, and other printers. Plus, text on the screen will appear smooth at even the largest sizes.

For the Apple IIGS, System 5 or later. Reg. $69.95

Sale $39.95

The quick brown fox
The quick brown fox

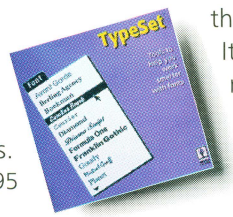
ImageWriter II printing before and after Pointless



TypeWest An outstanding collection of 40 TrueType fonts for use with Pointless. These professionally-designed typefaces are perfect for home, school, or work. Don't waste your time and money on lesser quality fonts from other sources.

For the Apple IIGS with Pointless. Reg. $49.95

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TypeSet The perfect companion for Pointless that helps you manage your TrueType fonts. It provides a What-You-See-Is-What-You-Get Font menu that displays your fonts in their own typefaces, font sets to work with custom groups of fonts, and extensive font reports.

For the Apple IIGS with Pointless. Reg. $49.95

Sale $29.95

Stretch your disk space.

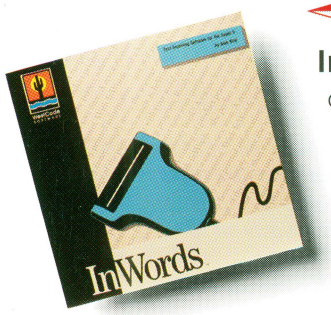


HardPressed 1.0 If you're always searching for more disk space, then you need HardPressed — the best disk compression software for your Apple IIGS. It virtually doubles the space on any type of disk. Your 40 MB hard drive will be able to store 80 MB, or a 2 MB RAM disk can store 4 MB! HardPressed works behind the scenes, transparently compressing your files as you save them. When you open a compressed file or launch a compressed application, HardPressed automatically expands it for you.

For the Apple IIGS, System 6 or later. Reg. $69.95. AutoArk trade-up $24.95

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It's like typing 500 words per minute.



InWords 1.1 Optical Character Recognition (OCR) software that let's you use a Quickie or LightningScan hand-held scanner to scan pages from books, magazines, letters, etc. into text that you can load and edit in your favorite applications: AppleWorks, PublishIt, BeagleWrite, GraphicWriter, HyperStudio, and others. NEW version 1.1 adds improved recognition, speed, line handling and more! Why type? Get InWords instead!

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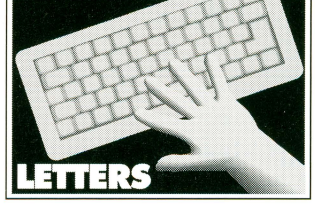
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Dear *II Alive,*

Your article about "Super Printers" in the May/June issue made me want to stick up for my printer. It may have been "ridiculously overpriced," but within the past year the ImageWriter LQ has been available from Sun Remarketing and other sources for around $300—new! The new System 6 driver is much better than the one that came with System 5.0.4, and takes full advantage of the printer's 27 pins.

When printing from ProDOS 8 programs that don't use the driver, simply use the program's ImageWriter II setting. I've found that if I first print a blank sheet of paper from a GS/OS program (making sure I specify "Darker" under options), then print from a ProDOS 8 program without turning the printer off in the meantime, print quality is significantly improved. Of course, text-only printouts from programs like AppleWorks look great! You can get the same speed and good-looking text in GS/OS programs by using the "Text Only" option under "Quality."

Mark A. Lowe
Princewick, WV

Mark: Thanks for the tips (and the sample printouts). They are indeed impressive, folks—if you're in the market for a better ImageWriter, the LQ bears serious investigation.

Dear *II Alive,*

I have found a problem with the "Phone Phun" program printed in the September/October issue of *II Alive* ("Weekend Hacker"). It only prints six digits in the phone number, giving you 729 combinations instead of the 2187 promised in the article. How can I correct this bug? Also, is it possible to modify the program to use more digits—so that the area code could be included? Could it be adapted for foreign phone numbers?

Robert Odell
Fajardo, PR

Robert: If you have any zeroes or ones in your phone number, you will get fewer combinations, because these digits do not have letters on them. (My home phone number has both a zero and a one in it, so I only get 243 combinations.) If you don't have any zeroes or ones in your phone number, and still don't get 2187 combinations, you may have mistyped a part of the program. The program is correct as printed; I checked it myself when I got your letter and a few others like it.

Computers are very picky about exact language in programs: changing or omitting a single character can cause the program to do very strange things—if it works at all—as you may have discovered. If you are certain that you have typed the program 100% correctly, then I suppose a hardware malfunction is possible, but it's far more likely that you have made a mistake that you didn't catch.

As for changing the program to accept more digits, we leave that, as they say, as an exercise for the reader.

Dear *II Alive,*

Please remember that not all of us use a IIGS! The "Weekend Hacker" column on forest fires did not list a version of the program for 8-bit machines, though it noted that it "could have been done." I'm including a version of Westerfield's program that runs under Applesoft (Listing 1). It would have taken a little more space in the magazine, but you could have taken out the silly remarks.

Robert Stong
Chartlottesville, VA

Robert: Thanks for the program! Actually, Mike Westerfield submits his columns with only IIGS versions of the programs. For the column on Chaos, we converted his programs to Applesoft (and made some mistakes in the process—see the corrections in the last issue), but his remarks about needing 128K arrays made the forest fire simulation seem like something outside Applesoft's realm. I hadn't thought of using low-resolution graphics—not as "pretty" as the IIGS version but it certainly gets the point across. Glad you tackled it!

Dear *II Alive,*

When my subscription for *inCider/A+* got transferred to *II Alive,* I never received the free video. Can I get a copy?

Andrew Eisenman
Gilbert, WV

Andrew: Unfortunately, the free video offer expired a month or two before the inCider/A+ *transfer occurred, so you're not eligible to receive a free copy. You can, however, purchase a copy for $7.95—just call (800) 777-3642.*

WHAT MISTAKES?

Test Drives: In last issue's "Test Drives," the retail price of *Twilight II* was listed as $49.95. The correct retail price is $39.95. In the July/August issue's "Test Drives," the RAM requirements of *ProTERM 3.1* were listed as 1 MB. The correct RAM requirement is 128K.

Phone Numbers: The phone number for the Tri-Mike Network East listed with Joseph Selur's article on mobile computing is incorrect. An updated phone number was not available. The "800" phone number for Alltech Electronics listed in Sheane Meikle's article on used Apple equipment is incorrect. The correct number is (800) 995-7773.

LISTING 1

```
10 DIM A(1,39,39)
20 PRINT CHR$(21): TEXT: HOME: GR: T=.55
30 FOR I =1 TO 38: FOR J = 1 TO 38: A(1,I,J) = 4: NEXT: NEXT:
A(1,19,19) = 1
40 COLOR=4: FOR I = 1 TO 38: HLIN 1,38 AT I: NEXT: COLOR=1: PLOT 19,19
50 VTAB 22: PRINT "Time: 0"
60 FOR N = 1 TO 150: NB = 0
70 FOR I = 1 TO 38: FOR J = 1 TO 38: A(0,I,J) = A(1,I,J): NEXT: NEXT
80 FOR I = 1 TO 38: FOR J = 1 TO 38: IF A(0,I,J) <> 1 GOTO 140
90 IF A(0,I-1,J) = 4 THEN IF RND (1) < T THEN A(1,I-1,J) = 1
100 IF A(0,I+1,J) = 4 THEN IF RND (1) < T THEN A(1,I+1,J) = 1
110 IF A(0,I,J-1) = 4 THEN IF RND (1) < T THEN A(1,I,J-1) = 1
120 IF A(0,I,J+1) = 4 THEN IF RND (1) < T THEN A(1,I,J+1) = 1
130 A(1,I,J) = 0: NB = 1
140 NEXT: NEXT
150 FOR I = 1 TO 38: FOR J=1 TO 38: COLOR= A(1,I,J): PLOT I,J: NEXT:
NEXT
160 VTAB 22: PRINT "Time: ";N: IF NB = 0 THEN N = 150
```

II ALIVE

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Volume 1 Number 4

A Quality Computers Publication

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Our Address: *II Alive*, PO Box 349, St. Clair Shores, MI 48080 USA. (If shipping by UPS or some other carrier requiring a street address, use 20200 Nine Mile Rd., St. Clair Shores, MI 48080 USA.) Also check our Voice Mail, Fax, and Electronic Mail addresses (below) for faster ways of getting in touch.

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Writing for II Alive: Send a self-addressed stamped envelope to *II Alive*—Editorial Department at the address above for our detailed Writer's Guidelines.

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Got a question? These people have the answer. Write to them directly; enclose a Self-Addressed Stamped Envelope. Remember, these people are volunteers and are not associated with (nor paid by) *II Alive*. If you would like to be a volunteer, send us a letter with your mailing address and your area of expertise, and we'll print it here.

Apple II Programming (BASIC, C, Pascal—not IIGS)
Daniel Wallace
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Mountain View, CA 94043

Apple II Programming (BASIC, 65C02 assembly, UltraMacros)
Max Vandament
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Using the Apple IIGS (GS/OS, incompatibilities, DAs, INITs)
Colin Williamson
605 Mt. Gretna Rd.
Elizabethtown, PA 17022

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507 South Calumet
Aurora, IL 60506

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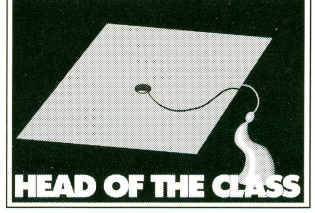
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II Alive is published six times a year and is mailed to at least 40,000 each issue. Contact Matt Spatafora or Carl Sperber at 1-800-777-3642 for more information.



English-to-Spanish Translators

CCC of San Antonio, TX is pleased to announce the release of its two new English-to-Spanish translation programs—*Translator E/S,* and *Spanish Grammar.* Both programs are ProDOS-based and require either TimeOut Grammar (available from Quality Computers) or Sensible Grammar.

Translator E/S can translate any document from English to Spanish. No prior knowledge of Spanish is required, although it may be helpful. Good command of the English language is also helpful. When *Translator E/S* stops at a word or phrase, the user is given the option of replacing the English word or phrase with its Spanish equivalent. When the user encounters a word or phrase that *Translator E/S* cannot translate (such as a place name), they can use the English-to-Spanish Pocket Dictionary, which comes with the program, and make the change manually.

Spanish Grammar is designed to correct grammatical errors in a document written in Spanish, or one translated using *Translator E/S.* It flags erroneous or unnecessary Spanish phrases and poor grammatical structures.

Used together, *Translator E/S* and *Spanish Grammar* can serve not only as document translators, but also as a linguistic tutorial. Users will learn Spanish as they use the programs.

Translator E/S ($69.95) and Spanish Grammar ($59.95) are available from CCC Incorporated, P.O. Box 681954, San Antonio, TX 78268, (210) 344-6102. They can also be purchased together ($119.95).

GS/OS Desktop Address Database

Econ Technologies, Inc. of Oviedo, FL announces the addition of a new member to its line of software. *Addressed For Success* is a GS/OS, desktop-based database management package that elegantly manages large lists of names and address. It includes many powerful features and a friendly, easy-to-use interface.

Addressed For Success lets you created address databases in a variety of ways. Addresses can be entered using the built-in editor, or imported directly from AppleWorks database files, or any ASCII text file.

Addressed For Success allows you to easily print addresses, graphics, and postal barcodes on any kind of label or envelope. Its print preview feature lets you instantly see exactly how your label or envelope will look, eliminating guesswork. Addressed For Success has several features not found anywhere else, such as: automatic return address generation; a 65,000-character memory field; selection by example; bulk sortings; full support of the clipboard; and automatic PostNet barcode generation. *Addressed For Success* also comes with over 30 pre-defined label templates supporting virtually every standard Avery label format.

Addressed For Success is the first GS/OS program to come from the recent expansion of Econ's programming staff. It is a testament to the firm commitment Econ has made to bring useful, productivity software to the Apple IIGS.

Addressed For Success ($49.95 SRP) requires an Apple IIGS with 1 MB of RAM, and System 6.0 or greater. It is compatible with The Manager (Seven Hills Software), and Switch It! (Procyon). Econ Technologies, Inc., P.O. Box 195356, Winter Springs, FL 32719, (407) 365-4209.

America Online & GEnie Support User Groups

America Online's Apple II User Group Leader conference is held at 10 PM Eastern on the last Tuesday of each month in the User Group forum (keyword: UGF). This conference, specifically for user group leaders and SIG leaders, features ideas for getting volunteers for group functions, running a BBS, demonstrating software, and all the other topics discussed at user group meetings. America Online offers discounts for user group ambassadors, and features monthly disks and newsletter articles for members. For more information, contact Linda Frechette (AFC Brite) on AOL.

GEnie's Worldwide User Group (WWUG) meets on the third Sunday of every month at 2 PM Eastern. This SIG of the newly-formed International Computer Owners Network (ICON) is open to all user group members. Attendees will hear from program gurus, authors, and publishers, and will explore all aspects of the Apple II world through discussions, question and answer sessions, and guest speakers. For further information, contact Gena Saikin (A2.GENA) on GEnie. ■



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Learn To Program In C and Express 2.1

II ALIVE RATINGS

★★★★	Excellent
★★★	Very Good
★★	Good
★	Fair
☆	Poor

LEARN TO PROGRAM IN C

★★★

The Byte Works

$50 list ($200 list in bundle with ORCA/C)

1.25 MB Apple IIGS (Hard disk, 4MB RAM, System 6, ORCA/C, and Toolbox Programming in C strongly recommended)

Reviewed by Jeff Hurlburt

For years, C has been the primary language for full-featured software development—not just on the IIGS but on other computer platforms. C programming experience looks pretty good on a resumé, too. On the other hand, C is not exactly easy to master—many folks seem to be constantly learning C but never doing any C programming!

For the numberless legions of wanna-be C aces, Byte Works suggests *Learn to Program in C*. Developed by Mike Westerfield, LPC (as it is affectionately known) is a 17-Lesson "how-to" course built around a 322-page loose-leaf manual and 'Problem Answers' diskette. With very few exceptions, the programs are in text mode and employ only standard C library routines, so, as Westerfield notes, you can use the course with any ANSI-standard C on any platform. Still, your best choice is ORCA/C on a IIGS, because some of the directions apply only to ORCA's Desktop environment. Lesson 17, a full-blown "Break Out" game, does employ IIGS toolbox routines. Naturally, the diskette material is also most accessible on a IIGS.

Can you sit down at your computer with LPC, boot up ORCA/C, and actually learn the language? Maybe. Certainly, Westerfield's easy-reading style and well-organized presentations shorten the learning curve. From "Hello World" I/O through loops, math, procedures, data types, sorting, and more, each of the seventeen units communicates its point clearly and effectively. Westerfield avoids snow-job terminology, so programming novices and experts alike can get the most from in-depth discussions, multiple examples, problems, and "what happened" explanations. Listing the solutions to each problem listed in the manual and on diskette is handy because you can see what each does even if you decide to 'skip around' some exercises. Yes, LPC does cover C.

Why, then, say that maybe one can expect to learn C? Why not "probably" or "almost certainly"? Well, practically everyone who succeeds in learning to program in a language does so by doing real programming. A real program is one that does something you want to do—which explains why so many skilled programmers begin as hackers and game makers.

The main reason a IIGS user would want to learn C is to create multi-windowed Desktop applications, desk accessories, music editors, and games that use super hi-res graphics and pull-down menus. One can put up with just so many "Hello World" text-screen exercises. The Byte Works C course is pretty basic and, unfortunately, pretty much lacking in the things that make the IIGS special. The odds are pretty good that impatience and boredom will produce yet another C dropout.

To write real programs on a IIGS (or, for that matter, any other computer), you must make use of the machine's capabilities. LPC's major weakness is that it does not, from square one, set out to teach the IIGS user how to use ORCA/C 2.x to write IIGS C programs. The course, if you can finish it, will teach you C, but the fact that you learned it on a IIGS will be mostly incidental—the programs you'll know how to write will work on just about any computer with a C compiler.

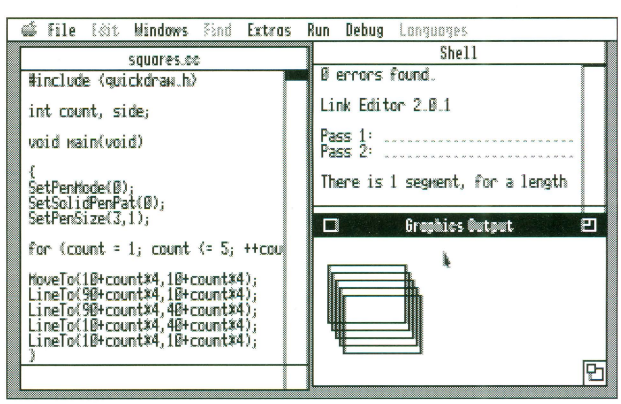
How can you get around this problem? A good place to start is the ORCA/C package itself. It includes a Samples diskette loaded with source code for Desktop applications, CDEVs, HyperStudio NBAs, and other real IIGS programs. There's no discussion of these samples, but the in-program comments will be very helpful—especially once you're past the novice stage.

Shareware, too, can be a treasure trove of advanced programming examples. Often, the author of a program will send you the source code for a small extra fee. Softdisk G-S is another good resource for source code. As many veteran programmers already know, experimenting with a favorite game or utility may the fastest way of all to learn a new language.

So far, the best IIGS-specific C resource is Mike Westerfield's *Toolbox Programming in C* ($65). With four Problem Answer diskettes and a 466-page manual, it's a fine "real stuff" companion for LPC. In fact, tackling C on the IIGS without the examples and discussions found in "Toolbox" would be ill-advised.

Learn to Program in C by itself is difficult to rate, since it doesn't provide enough stimulation to entice people to keep going. As a kind of C language manual, it works very well indeed, thanks to its conversational style and abundant examples. Add ORCA/C and *Toolbox Programming in C*, and you do get a very good instructional package. As part of a complete programming course with these other materials, LPC is very good, and our rating assumes you are using LPC in this way.

So, you want to be a C programmer, eh? Well, this (thack!) is ORCA/C. This (thump!) is *Learn to Program in C*. This (ka-thunk!) is *Toolbox Programming in C*. This (tap, tap) is your IIGS. And this (click!) is a mouse. It's rough out there, but it's also loads of fun. Pick up your gear and get to it!





EXPRESS 2.1

★★★

Seven Hills Software

$49.95

(Updates: $17.50 from 1.x; free from 2.0)

2 MB IIgs, hard drive, System 5.0.4 or later, and one 3.5" floppy drive

Reviewed by Bill Bert

Last year, Seven Hills took Apple IIGS productivity to new levels with their software printer spooler, *Express.* I wanted to do multiple printouts for our baseball team without tying up my IIGS for hours, so I gave the product a try. Release 1.1 worked as advertised, but left a lot to be desired; that's the bad news. The good news is that *Express 2.0* offers lots of improvements, and the 2.1 release fixes a couple of bugs and adds a few bells and whistles as well.

A printer spooler allows you to work on your computer while files are being printed. (Macintosh users are familiar with this feature, provided by PrintMonitor on the Mac.) When you do a Print with *Express* active, the spooler intercepts the data headed for the printer and saves it to a spool file on your hard drive. After the file has been spooled to disk, you can continue using the computer while *Express* prints the document in the background. Printing itself is no quicker—in fact, total print time will be a little longer—but, now, you don't have to wait for the printing to finish before you can get back to using the printer.

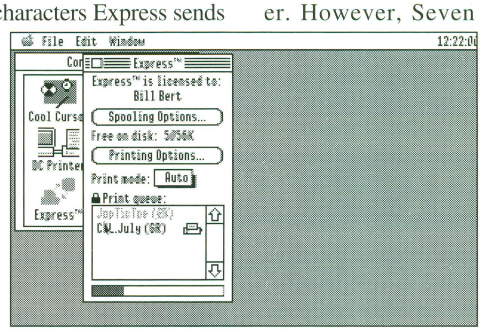
The *Express* package includes one 3.5" disk and a simple but comprehensive manual. Installation is performed with the standard Apple Installer, which copies the Express Control Panel Device (CDev) file, which takes up 52K of disk space, onto your hard disk and also creates a spool folder inside your System folder.

Besides System 5.0.4 or later and a 3.5" drive, a hard disk is a virtual necessity; 2 MB RAM is close to the minimum "real world" requirement (actual requirements may vary depending on what program you're running in the foreground). The foreground application can be any IIGS-specific program, including (but not limited to) *AppleWorks GS, GraphicWriter III,* and *Platinum Paint,* as long as the program starts the *Print Manager.* Supported printers include the ImageWriter and ImageWriter II, the StyleWriter, and any of the Hewlett-Packard DeskJets or LaserJets with Independence or Harmonie drivers. *Express* will not work with a networked printer.

Once installed, *Express* works almost by itself. The only time you'll need to enter the *Express* control panel is to change a setting—say you want to print four copies of a file, or you want to keep the spool file for printing again later. Making these changes is as simple as opening the control panel, clicking on Spooling Options, and typing in a number or checking a box. *Express* remembers and uses the last settings you gave it.

Since release 2.0, *Express* has incorporated a number of speed-boosting improvements. One lets you choose the location and name of the spools folder. This can come in very handy from an organizational standpoint. If you have a set of files you are continually printing for your small business, create a BUSINESS.SPOOLS folder and save the document spools there. When you need a set of files printed, simply tell *Express* to use the appropriate spools folder and you can print the whole set at once. You don't even have to launch the program that created the files! Naturally, this feature can also be used for more mundane purposes, such as placing the spool files on a RAM Disk when you've booted from a floppy disk.

A second enhancement allows user adjustment of the number of characters Express sends to the printer each time it gets control of the computer. Changes here do not affect the print time, but allow the user to reduce any jerky mouse movement or slow reaction. Seven Hills says that this setting can particularly help those outputting high-detail characters to high-resolution printers. On my ImageWriter II a change from the default of 128 to 64 produced no discernible difference.



I think I've gotten the most mileage out of the new "multiple copies" option. With version 1.1, the only automatic way to print multiple copies was to type the number of copies in the Print dialog. This increased spooling delay because the older version insisted on creating a new spool file for each copy of the document. With version 2.1, Express spools the file only once and merely prints multiple copies. This saves time and disk space.

I checked the performance of *Express* on my 7 MHz Zipped IIGS by printing three "Best Quality" copies of a 17K AppleWorks GS calendar. The chart below shows Wait Time (delay before I could resume using the computer) and the time from clicking on Print until the documents finished printing (rounded to nearest 5 seconds).

	Wait Time	Total Print Time
Without Express	17:30	17:30
3 copies done separately	5:40	22:55
1 copy printed 3 times	2:00	19:25

Printing with *Express* got me back to AppleWorks GS twelve to fifteen minutes faster! (With my Zip GS turned off, the spooling or "wait" time doubled—still a big time savings.) Compared to version 1.1, the raw (non-multiple prints) improvement was only 5-10 percent, but my test file was fairly small. Seven Hills says that for large, more complex files the base speed improvement will be about 20 percent.

Express 2.1 fixes a bug that could corrupt spool files in low-memory situations. I was able to create a situation where *Express 2.0* would send form feeds to my printer in the middle of the printout—and in one case out of five, it would send some garbled characters, too. (With Express turned off, the document would print perfectly.) I have not been able get version 2.1 to do this; other testers report that the problem is solved for them as well. The new version also recognizes the special Printer57600 port driver (for DeskWriter printer) as a serial port without having to rename it.

Twilight II fans will be glad to hear that *Express 2.1* lets the utility use background blanking when printing is in progress so that an automatic screen blank does not stop the printer. However, Seven Hills says *Twilight II* apparently does not honor the background blanking request when you drag the mouse pointer to the "blank now" corner. That action still causes *Express* to stop printing

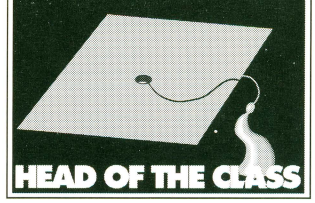
Express does not function in programs that do not start the *Print Manager.* Sometimes I'd like to be able to play a game while my file prints, but most entertainment products (and many other programs) do not start the *Print Manager.* Dave Hecker of Seven Hills says *Express* will never be able to print anything while in ProDOS 8 programs, but notes that a future revision may be able to print files while in a GS/OS program that doesn't use the *Print Manger.*

In the final analysis, *Express* has come a long way since the initial release. Virtually a necessity if you do lots of printing, *Express 2.1* is a handy, user-friendly tool I would recommend to everyone. ■

VENDOR INFORMATION

The Byte Works
4700 Irving Blvd. NW, Suite 207
Albuquerque, NM 87114
(505) 898-8183

Seven Hills Software
2310 Oxford Road
Tallahassee, FL 32304-3930
(904) 576-9415



Utilizing Apple II Software In Thematic Unit

by Karen & Ron Evry

Most elementary schools in America these days have adopted the Thematic Unit into their curriculums. Basically, a thematic unit is a carefully designed plan to incorporate a single broad theme into every subject taught. Not only does this method teach about its particular theme but it also reinforces the idea of utilizing every research tool available to the students. Vocabulary, reading, spelling, math, science and social studies skills all become useful to them in real life situations. Recently, the fifth grade teachers at Stafford Elementary in Stafford, Virginia worked out a thematic unit dealing with the subject of oceans. A broad version of this unit is currently available for downloading from GEnie in the Education RoundTable (ERT) software library. The only computer usage mentioned in it is the general use of a word processor. But examining the thematic unit shows a number of places where various Apple II programs can be utilized quite successfully.

Every thematic unit follows certain conventions, beginning with a Rationale, which states the purpose of the unit. This unit's purpose is to encourage students to investigate and research aspects of the ocean. This is followed by the Unit Plan, generally describing the time (3-4 weeks) and design of the unit (different strategies implemented to meet individual abilities, integration of all subjects, inclusion of a related novel to be read and a "tropical feast" to conclude the unit).

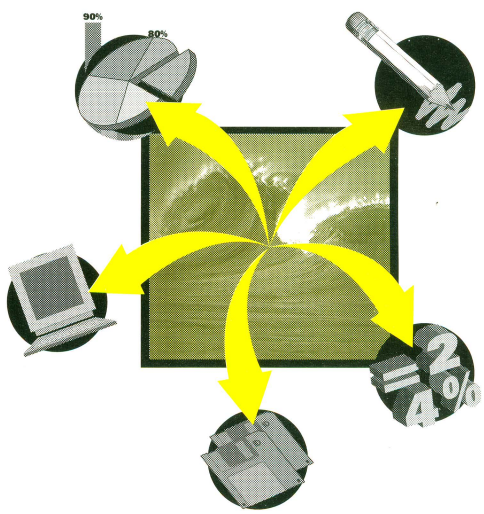
Then the course Objectives are stated; in this case, the goal is learning about oceans by utilizing a variety of resources.

After the general introduction comes the list of Specific Objectives, each listed under the categories of each general subject. For example, under "Math" is listed:

- The student will record measurements of ocean depth.
- The student will classify and list the order of sea animals according to size.
- The student will create a Venn diagram.

This is followed by a listing of Materials, which would include videos such as *Voyage of the Mimi* and *Island of the Blue Dolphin;* magazines such as *Ranger Rick's, Naturescope* and *National Geographic;* books, spelling lists and the "Contracts," which we will explore in more detail later. A CD-ROM electronic encyclopedia is also included on the list, along with other available software resources should be listed.

The Evaluation methods are then described. The methods of evaluation are generally teacher observation, contract activities, and testing; we also include a grading guide of the ocean contract. There are twenty-two activities from the contract listed, followed by the subject and the grading criteria. Some examples include:



- *Surfing Booklet* (English): correct grammar usage, factual content
- *Seaweed Report* (Science): content, chart and graph data
- *Oceans Chart* (Math): accuracy
- *Shoebox Diorama* (Science): accurate details, creativity
- *Scrapbook* (Social Studies): variety of articles, organization

Next comes the part of the thematic unit that is actually handed out to the students. First, there is the Spelling Contract, which includes a list of ten different activities—from which the student can choose any five—and three weeks worth of spelling word lists. Grades for each activity are on a point scale from one to ten. A student needs to get at least 30 total points for a C, 40 for a B, and 50 for an A. Some of the activities include:

- Illustrate and give clues for ten words.
- Make a word search with fifteen of the words. Include the answer key.
- Write a sentence for each of fifteen words.

If your school has Davidson Software's *Spell It!,* the unit's lists can be entered into the program and points given for successfully maneuvering the frog through them. Also, the public domain program *Spelling Bee,* by Jim Weissman, M.D. (available on Phil Shapiro's public domain disk, Language Arts Treasures) is a great drill-and-practice program that allows you to enter customized word lists. Crossword and wordsearch puzzles can be put together by the students with the help of Mindscape's *Crossword Magic* or Mindplay's *Crozzzwords* and *Wordzzzearch* programs.

A letter to parents follows, describing the thematic unit and the contracts. It asks parents to help by taking the child to the public library or by coming to the school to address the class if they have particular knowledge or skills related to the unit.

The Activities Contract includes a grading/point structure similar to the spelling contract. Some activities are mandatory (such as reading sections of the science textbook and doing the activities in it), and others are selected from a list of twenty-two assignments and projects. Each activity has a point value based on its difficulty. If you prefer, you could use portfolio assessment, or other, more traditional, grading techniques.

Many of these activities' values can be enhanced with the use of Apple II programs. For example, projects such as an ocean animal chart or an illustrated list of edible seafood could be compiled using the AppleWorks Data Base module. If you have an Apple IIGS, AppleWorks GS can import graphics to illustrate databases (if you have an Apple IIe or IIc, students can use Berkeley SoftWorks' *Geofile* or Beagle Bros' *TimeOut Paint* program to accomplish the same thing).

(Continued on page 43)

THE MACRO EXCHANGE

The following macro was submitted by Shelby Bush, III, of Louisville, KY. Shelby writes: Sometimes you need a clock you can read across the room. I don't have a wall clock in my office, so I devised this UltraMacros 4 macro set to give me one. Naturally, you must have a clock installed in order for the macro to function, unless you like to think it's midnight all the time.

```
labels

.SuperClock

START
]:<all><sa-a>!

a:<all><Y=17:R=0:sa-d:sa-k:begin:                          // initialize strings
  $3="":$4="":$5="":$6="":$7="":sa-b:sa-h:rpt>!            // and run clock

b:<asr><sa-E:$1=time:$8=time24:$9=left $8,2:               // get current time
  $0 = "AM":U=val $9:if U > 11 then $0 = "PM":endif:       // am or pm?
  $2=mid $1,1,1:sa-g:$2=mid $1,2,1:sa-g:
  $2=mid $1,3,1:sa-g:$2=mid $1,4,1:sa-g:                   // set up numbers
  $2=mid $1,5,1:if $2 = " " then goto sa-f:endif:          // handles space
  sa-g:sa-c>!                                              // print time

c:<asr><poke $11ac,0:insert : oa-e :x = peek $c000 :       // set up esc to
  ifnot x = 27 : else poke $11ac,27:                       // leave clock and
  launch "um4.0.system" :endif:                            // return to normal

  .writestr 25,10,$3:.writestr 25,11,$4:                   // prints time
  .writestr 25,12,$5:.writestr 25,13,$6:                   // into box
  .writestr 25,14,$7+$0>!

f:<asr><if $2 = " " then $3 = "      "+$3:                 // handles space
  $4 = "      "+$4:$5 = "      "+$5:
  $6 = "      "+$6:$7 = "      "+$7:sa-c>!

g:<asr><T = val $2:
  if $2 = ":" then sa-q:endif:
  if $2 = "0" then sa-p:endif:
  if T = 1  then sa-r:endif:                               // routine to
  if T = 2  then sa-s:endif:                               // configure numbers
  if T = 3  then sa-t:endif:                               // into strings
  if T = 4  then sa-u:endif:
  if T = 5  then sa-v:endif:
  if T = 6  then sa-w:endif:
  if T = 7  then sa-x:endif:
  if T = 8  then sa-y:endif:
  if T = 9  then sa-z:endif>!

d:<asr><.titlebox 15,5,50,11,3,"AppleWorks SuperClock">!   // draws box

e:<asr: $1 = "Sunday,Monday,Tuesday,Wednesday,Thursday,Friday,Saturday" :
  X = .weekday 0,0,0 :$2 = .choose $1,x:
  $2 = $2 + ", "+ date:.writestr 255,8,$2>!                // day, date line

h:<asr><if R = 1 then sa-j:endif:ifnot R = 1 then sa-i>!   // draws tick-tock

i:<asr><.writestr Y,16," ":Y=Y+1:.writestr Y,16,&A&:       // subroutine for
  if Y = 65 then R = 1:endif>!                             // forward movement

j:<asr><.writestr Y,16," ":Y = Y - 1:.writestr Y,16,&A&:   // subroutine for
  if Y =16 then R = 0>!                                    // reverse movement

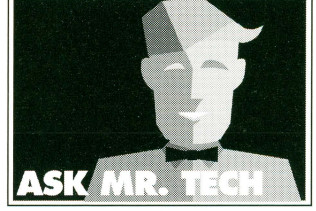
k:<asr><.writestr 62,23,"                  ">!             // blank screen clock

p:<asr><$3 = $3 + &WVWVW &  :$4 = $4 + &W   W &:           // 0  (zero)
  $5 = $5 + &W   W &:$6 = $6 + &W   W &:
  $7 = $7 + &WVWVW &>!

q:<asr><$3 = $3 + "  ":$4 = $4 + &[ &::                   // :  (colon)
  $5 = $5 + "  ":$6 = $6 +&[ & :$7 = $7 + "  ">!

r:<asr><$3 = $3 + &    W &:$4 = $4 + &    W &:           // 1  (one)
  $5 = $5 + &    W &:$6 = $6 + &    W &:
  $7 = $7 + &    W &>!
```

(Continued on page 37)



QUESTION: I downloaded some files from the NAUG (National AppleWorks User Group) BBS. Many of them had the suffix of "BXY," which I understand means a ShrinkIt archive in a Binary II wrapper. However, when I attempted to unshrink the files, the names of the files in the archive were blank! When I tried to unpack them, I got a "Bad pathname" message. Do you know of any way I can unshrink these files?

Curtis Gilbert
Anson, ME

ANSWER: The current version of *ShrinkIt* is 3.4. Get a copy of that and your problems should be solved.

QUESTION: I want to do Desktop Publishing on my IIe but am not sure what kinds of upgrading I need to do. I currently have a Monitor III, a Disk II 5.25" drive, an Apple DMP printer, a 512K RamWorks card, and a Sider II 40 MB hard drive. My IIe still has the original 6502 (not 65C02) chip. What do I need to add or replace to do a credible job of desktop publishing? Or would I be better off with a different computer?

Robert Eggers
Sioux City, IA

ANSWER: The only things you're going to absolutely need to get started are an Apple IIe Enhancement kit, which will replace the 6502 with a 65C02 (and update three other chips as well). Then you'll be able to run *Publish It! 4,* which is the second thing you'll need. Your hard drive and expanded memory will serve you well. The final thing you'll probably want is an AppleMouse IIe (although *Publish It!* will work with a joystick or just the keyboard, you'll spend less time swearing if you spring for the mouse).

QUESTION: My IIGS has been crashing a lot. I suspect I might be running up against the limits of the stock power supply, since I've added a fan and it didn't seem to help. Can you tell me if my diagnosis might be right before I buy a heavy-duty power supply? I have an Apple IIGS (ROM 01), a 4 MB RAM expansion card, a RamFAST/SCSI card, a Syquest 40 MB hard drive, an AE 3.5" drive, an Apple 5.25" drive, a Super Serial Card, a Zip GS accelerator, and a Quickie scanner.

William C. Roemer
Fort Collins, CO

ANSWER: With that list of equipment, power supply strain is a definite possibility. The problem may be compounded by the Zip accelerator—faster microprocessor chips tend to be more susceptible to heat and power supply problems than the normal 2.8 MHz chip. Even if the problem goes away when you take out the Zip, though, that doesn't mean the Zip is the problem. I believe your diagnosis is right-on.

QUESTION: As the secretary of the local Crime Watch unit, I keep the records using AppleWorks 2.0 on a Laser 128. I have 332 records (one for each home served by the unit) in a data base file, and want to use the mail merge to address envelopes as explained in Richard Spitzer's article in a previous issue of *II Alive,* but AppleWorks tells me that the Desktop is full. I recall hearing about a limit of 200 data base records on the clipboard at any one time, so I am wondering if I could separate my data base into five files, one for each district. This would solve the problem since my largest district has only 91 names. How would I go about doing this?

Arthur Boehling
Brooksville, FL

ANSWER: The error message you're getting indicates that the Desktop itself is full. When you print the data base records to the Clipboard for the mail merge, AppleWorks makes another copy of the records. Essentially, you need enough memory to hold two copies of your data base. The 200-record limit (250, actually) you mention is also a factor, but I don't believe you're even getting that far because you don't have enough memory.

As a first step, I'd suggest expanding your Laser's memory. Some models have built-in memory expansion sockets and simply need chips; others need a memory card. They may be hard to find these days now that Laser has stopped making their Apple II compatibles, but check with a mail-order retailer or two. After you get at least 256K of memory in the machine, I'd suggest upgrading to AppleWorks 4.0, which will eliminate the other problem you're going to run up against (the 250-record limit on the clipboard). In fact, AppleWorks 4.0 doesn't use the clipboard at all during mail merge operations (the procedure has been simplified).

If you want to stick with the hardware and software you have now, it's easy to create five different files from your single data base. First, make five copies of the file with different names (either with a copy program like Copy II Plus, or by saving the file under five different names from within AppleWorks). Then add each copy to the Desktop individually, sort it on the District category, and then simply delete the records you don't want (that is, all the records except the district you want to keep). Then save that file, remove it from the Desktop, and move on to the next one.

QUESTION: I recently upgraded to System 6.0.1 from System 6.0 and am pleased with the improvements. However, I can't figure out what has been done with the SynthLab disk. I noticed that most of the dates on the files on the System 6.0.1 disk are earlier than the dates on the 6.0 disk! I haven't noticed any difference in performance, but if Apple has resorted to removing bugs by reverting to earlier versions, I think we can safely assume that the development of SynthLab has come to an end.

Abram M. Plum
Bloomington, IL

ANSWER: There were no code-level changes in the SynthLab disk for 6.0.1. This means that the program itself was not changed and that there is no functional difference. However, Apple re-linked the program using new linker software. (Developers like to write large programs in small, manageable chunks. The linker is the tool which combines the chunks into one executable program.) The new linker made the files smaller, but did not affect the way the program operates. As for the dates—beats me. I can think of a number of reasons, the most plausible of which is that Apple had the new linker before System 6 came out but did not release a version of SynthLab linked with it because it had not been tested enough. Or perhaps someone's clock was simply set wrong!

QUESTION: When I enter the value 15 into the AppleWorks 2.0 spreadsheet, AppleWorks displays it as 16.56348. I'm not using any formulas. The same thing happens with the calculator included with System 6—if I enter 2 and just it the "=" key, the calculator says 3.171107116. I have a ROM 01 IIGS with an AE RamKeeper installed. Is there something wrong with my computer?

Bryan A. Johnson
Lake Wales, FL

ANSWER: It's a distinct possibility. I've never seen this kind of problem, and I would never expect to see it on a IIGS that's functioning normally. Try booting your computer with the Shift key held down—if AppleWorks operates properly when Shift-booting, then you have some kind of software conflict. It's possible, I guess, that the RamKeeper could cause the problem, but I don't see how. (You could always try taking it out.) Anyone else have any ideas?

QUESTION: When I print a text file to disk as ASCII, AppleWorks 3.0 splits the lines. What was one long line in AppleWorks becomes two shorter lines in the text file. I am designing a *HyperStudio* stack which reads certain kinds of text files and need to know how to fix this. How many characters are in a line of ASCII text?

Michael Vinca
Erie, PA

ANSWER: Asking how many characters are in a line of ASCII text is like asking how much coffee is in your cup right now—it's going to vary. AppleWorks should print to disk the way you need if you select "Standard text format with Tabs" or "Spaces substituted for tab stops" when you print the text file to disk. You should not select "Returns after each line." ■

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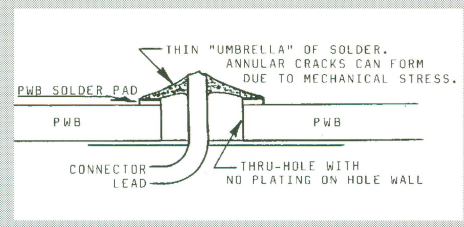
A IIGS KEYBOARD CONNECTOR PROBLEM

by Buzz Bester, Guest Tech

Here's an occasionally-needed keyboard connector repair that "smells of solder!"

The standard Apple IIGS keyboard has two ADB (Apple Desktop Bus) ports. The keyboard cable (which goes to the computer) and the mouse cable connect to these ports. When one or the other of these connectors develops an intermittent open-circuit, it manifests itself by "freezing" the mouse pointer wherever it happens to be. The symptom is not unlike a software hang-up, though it's caused by a hardware problem.

I was able to buy a used IIGS at a scandalous price because that connector fault, undiagnosed, depreciated its value. I soon found that a temporary fix for the intermittent open-circuit was to wiggle the faulty connector. The problem, however, did not go away and it became necessary to remove the keyboard from its case for closer examination. The simple disassembly described under "Sticky Keys," *II Alive, July/August, page 20,* exposes the connectors. There is no need to remove the keycaps.



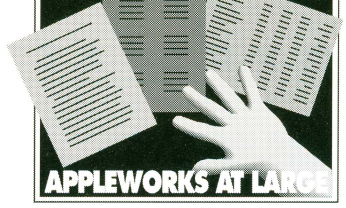
As a trained Metallurgical Engineer, and having worked on solder-joint reliability for 20 years, it seemed to me the "faulty connector" was most likely a faulty solder joint at one or more of the five places that the connector (socket) was soldered to the printed wiring board (PWB). Close examination showed that the solder joints were one-sided, pad-to-pin. There was no thru-hole plating so the joints were thin, umbrellas of solder—a type of joint known to develop cracks when stressed. Enough stress could be generated by simply plugging and unplugging the cable to propagate a crack across a solder joint over a period of time.

The diagnosis was simple; however, the fix required some dexterity and some experience with reworking faulty solder joints. Readers not having these qualifications might consider a qualified repair shop rather than risk damaging the PWB.

With skill and courage you can proceed with this home repair, but you need to understand the hazards included in the following instructions. Standard "grounding" procedures should be used to assure that damage to circuitry will not result from static charges.

Wick away the old solder from each of the 5 solder joints until the connector separates from the PWB. A 700°F temperature controlled soldering iron is suitable; do not use a solder-gun since it is not controlled. Use fine solder-wick and minimize the wicking time to avoid damage to the PWB. It is important that the solder in the wick not be allowed to solidify before being lifted from the PWB because it is possible to pull solder pads from the PWB if the solder is not kept molten by continuous contact with the hot iron. After the connector has been separated from the PWB, wick away any old solder remaining on PWB pads and connector pins. These surfaces need to be retinned. If they are not bright, it is advisable to lightly abrade away contamination with a sharpened emery board—remember that PWB pads are thin copper foil and can be damaged with excessive abrasion. Re-tin the connector pins and PWB pads with a thin coating of fresh, bright solder. Use small diameter Sn60 or Sn63 flux-cored solder wire; if you apply too much solder here, you will need to be wick away some of the excess to permit reassembly of the connector to the PWB. Reassemble the connector firmly to the PWB and use tape or clamps to keep the connector snug and still during the re-soldering procedure. Re-solder the five connections. Examine the re-soldered joints to assure that no solder bridges exist, using a magnifying glass if necessary. Clean the reworked area by brushing with isopropyl (rubbing) alcohol and blotting away the excess.

Finally, observe that there is about a 1/10 inch gap between the end of the connector socket and the keyboard structure. Observe also that insertion of the cable into the socket tends to reduce the 1/10 inch gap once again stressing the solder joints and slightly bending the corner of the PWB. A 1/2 inch length of "popsicle" stick wrapped with 5 to 10 layers of paper tape will make an ideal shim to fill the 1/10 inch gap. This final recommendation is the easiest part of the project and will prevent recurrence of the malfunction by reducing future stress on the connector socket solder joints.



Data Basics: Part II

by Steve Miller

In Part I of this series, we walked you through the basics of data bases: creating them, entering data and then viewing the records you've created. This month, we'll take you a few powerful steps further for you're total data base enjoyment.

ADJUSTING THE SCREEN LAYOUT

If your data base has many categories, they will not all fit on the screen when you're looking at the multiple-record layout. If this is inconvenient, you can easily change the screen layout.

First, be sure you're looking at multiple-record layout. If not (if you're seeing just one record), press OA-Z. Then press OA-L (for layout). Choose the first option, "Change the existing record layout." A list of options will appear on the screen, along with a representation of the layout at the bottom of the screen.

To change the width of a category: Put the cursor on that category (using the left or right arrow key). Then hold the OA key down, and use the left or right arrow key to make the category wider or narrower. Don't worry if the category name is cut off, or if part of your data is cut off. All of your information will be retained, even if you can't see all of it in this particular view.

To change the order of the categories: Put the cursor on the category you want to move. Hold the OA key down, and press either the < or > key. Each time you do this, the chosen category will move one column to the right or the left.

To delete a category from view: Put the cursor on the category, and press OA-D. Although the category will disappear from this layout, your data will not be lost. It will continue to appear in the single-record layout. To insert a category which has previously been deleted from this layout, press OA-I.

When you have finished adjusting your screen layout, press Escape. AppleWorks will ask whether you would like to have the cursor move to the right or down, when you press Return while working in the multiple-record layout. Think about what works best for you, make that selection and press Return. The multiple-record layout will now reflect the changes you've made. When you save your data base (OA-S), the new layout will be saved, too.

Adjusting the single-record layout is a little more complicated but often worthwhile. To do this, be sure the single-record layout is on screen, then press OA-L. Categories can be moved around on the screen by putting the cursor on the first letter of the category to be moved and holding the OA key down while using the up, down, left, and right arrows to move the category. Blank lines can be inserted by moving fields (start from the bottom and move fields down). However, fields cannot be deleted from this screen.

You might want to try highlighting the field names to make them stand out from the data. To do this, press OA-T. Personally, I don't like this option—I find the contrast hard on my eyes. You can leave it on if you like or press OA-T again to turn it off. To complete your new layout, press Escape. AppleWorks will ask which way you would like the cursor to move when you press Return: (1) in the order in which the categories were originally defined, or (2) left to right and top to bottom. Option 2 is almost always preferable. Remember that your new screen layout is not saved for the future until you save your file to disk (OA-S).

FINDING AND ORGANIZING

The true power of a data base lies in its ability to find records that meet specific criteria and to organize your records in logical ways. The AppleWorks data base can do both of these tasks very quickly and can also print out the necessary data in a variety of formats which you design.

For example, if you had the phone numbers of a hundred people in a data base, you could instruct AppleWorks to find Lee Miller's record; it would do so almost instantly. You can search for combinations, such as people who have home phone numbers in the 818 area code and work phone numbers in the 213 area code.

If you had the phone numbers of a hundred people in a data base, you could instruct AppleWorks to find Lee Miller's record; it would do so instantly.



If you wanted to print out a list of people in alphabetical order, along with their home and work phone numbers, it'd take about five minutes to set up the first time (and AppleWorks would remember how to print that type of list so you can print it out in seconds the next time). You could also print out a list in ZIP Code order. Anything that you would be able to find or organize manually, AppleWorks can do for you much faster!

To find something specific, press OA-F. You can choose to search through all the categories in all the records, or for faster service, just one particular category. For example, if you were looking for a particular person's name, it would be pointless to search all categories—you would choose to search the Last Name category. Then enter what you want AppleWorks to search for, and press Return. Only those records containing the data that you requested will be displayed. You may make changes to these records, even zooming in to specific records using OA-Z. To return to the list of all records, press Escape.

You can organize your data base based on any category or combination of categories. To do this, you should be looking at the multiple-record view. Then put the cursor on the category you want to organize, and press OA and A together (the "A" stands for arrange). Depending on what type of data you're organizing, you'll have the option of arranging in alphabetical, numeric, or chronological order. A sorted data base will not be saved in the sorted order unless you specifically save your file using OA-S.

WORKING WITH SPECIFIC RECORDS

AppleWorks allows you to select specific records and to work with them exclusively for as long as you want. To select specific records, press OA-R together. You will now construct a specific list of criteria to be met, such as "CITY equals LOS ANGELES and BIRTHDATE is before Jan 1 70." Just follow the prompts listed on the screen. After entering your final criterion, press Return, then Escape. The full list of criteria will be shown at the top-left of the screen. You will only be able to see (and to update) those records that meet the listed criteria until you change the criteria or change the selection to "ALL RECORDS." You can do either one of these by pressing OA-R again and following the prompts at the bottom of the screen.

Even though you may be working exclusively with selected records, the records which do not meet your criteria have not been lost or thrown out. Whenever you save your file, they will be saved too. But you will not be able to see them or access them until you press OA-R and select "ALL RECORDS."

MAKING ADDITIONS

You can add additional records to your data base at almost any time, by pressing OA and I (for insert) together. A blank record will appear. (If you're using AppleWorks 4, you can insert up to 250 blank records at once.) You can add any number of additional records, then press Escape. Be sure to save the file after making additions (OA-S).

HELP!

For a list of options and commands, press the OA key and ? together from almost any screen. As long as you've saved your previous work to your data disk, you can experiment and try different things to learn more about how the program works, and what it—and you—can do. If you make a major mistake and lose data, press Escape several times until you get back to the "Main Menu," instruct AppleWorks to remove the file from the Desktop without saving it, then retrieve the "good" file (which you saved earlier) from your data disk.

PRINTING REPORTS

You may print your data at any time by pressing OA-P to access the print menu. Creating reports is an advanced topic that requires at least one more article to cover, but the basics of arranging and selecting specific records are the same as those covered above. Unless you need to print mailing labels, choose to create "a new tables format." By following the prompts on the screen, you should be able to create a report format and print it.

To adjust the layout of a report format, follow the instructions for changing the multiple-record layout in the sidebar next to this article—the keys used are exactly the same. Making categories more narrow allows you to include more information on each line.

To adjust margins, type size and other printing options, press OA-O from the report format screen. The most important option is CI (characters per inch). A larger number of CI allows you to squeeze more information on each line. To change this option type CI, Return, then a number (most often 10, 12, or 17), then Return. Other options, such as Double Space (DS, then Return) are all listed on the screen. After selecting your options, press Escape.

To print a report which only includes specific records, stay in the report format screen, and follow the instructions for "working with specific records" given above—the steps are the same. Your report format will be saved for future use when you save your file to disk.

LAST WORDS OF ADVICE

If you're creating your very first data base, start out with something that's not too complex or overwhelming. Keep the number of categories manageable. Experiment with manipulating the data and printing reports. Learning to use the AppleWorks data base is fairly simple and straightforward and the results are more than worth the effort! ■

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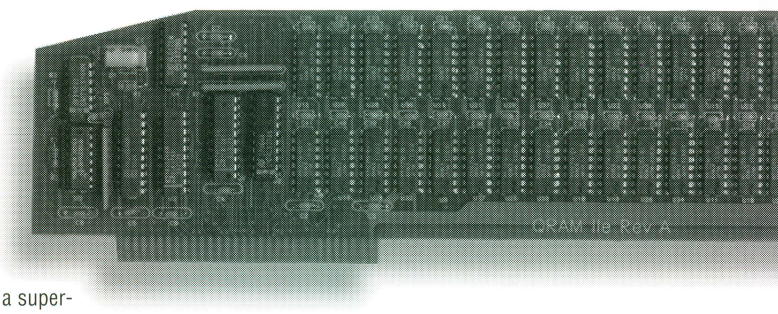
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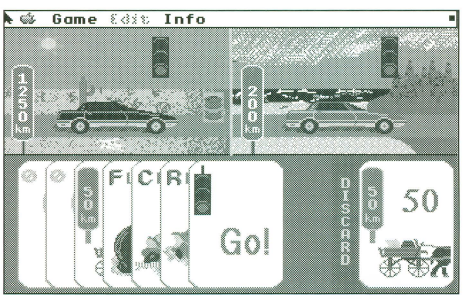
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► *Ken Franklin's contribution to the world of Apple IIGS entertainment goes far beyond the enjoyment he's given us with his superb game trilogy. He's also helping Apple II owners to make a valuable contribution to our country's homeless population by designating his products as ReliefWare—a unique offshoot of the shareware concept. All payments received by Franklin are donated, in full, to charities that support the homeless. What better way to enjoy your time off this holiday season?*



Milestones 2000
Ken Franklin, Reliefware-$15.00

Milestones 2000 is a car race game based on the card game Mille Bornes, published for decades by Parker Brothers. Franklin's version pits you against your computer, not another human.

As the game begins, the computer flips an electronic coin to determine who goes first. The cards are dealt; play proceeds as you place the various cards on your car, or on your opponent's, in an attempt to reach the goal of 5000 miles. The deck contains distance cards (which move your car the specified distance closer to the goal), problem cards (such as flat tires and accidents) which hinder your opponent's progress, fix cards (to counteract the problem cards), and power cards (such as "Super Driver," which makes you immune to accidents).

The graphics are good, the play is fast, and there are plenty of amusing sounds to keep you involved. Not only is this game great for pure entertainment value, but it may even be educational for the younger set. The game involves luck, to be sure, but careful strategy, mentally adding the mileage left to checkpoints or to win the race, and keeping a count of the various cards played will definitely help your game. *Milestones 2000* is a game that can be enjoyed by all family members—from two-year-olds sitting on a parent's lap to teenagers to adults.

THE SHAREWARE SPY LIBRARY

Programs mentioned in Shareware Spy are available from most online services and user groups. As a convenience to those without access to a local user group or a modem, we also offer the programs on disk. Send check or money order (in US funds) for $5 per disk to: Shareware Spy, PO Box 886511, Plano, TX 75086-6511. (If you live outside North America, include an additional $7 per order for airmail delivery.) Make checks payable to "Shareware Spy." Allow 2-4 weeks for delivery.

Important Note: When you buy a Shareware Spy disk, you are paying for the blank disk, postage, and labor involved in compiling the disk, not the software itself. You are still legally and morally obligated to pay the shareware fee for any shareware programs you decide to keep. (Remember, public-domain and freeware programs can be freely copied and distributed, but shareware must be paid for if you use it past the trial period.)

Programs do not include necessary System Software (ProDOS & Basic.System or IIgs System 5.04 or later.)

March/April 1993

1A	3.5 GS	Keyboard Extender, BRAM Checker, Scrapbook NDA, X-10 GS, GUIMaster, rSounder	
1B	3.5	AppleWriter II, Electric Duet, GraForth	
1C	5.25	AppleWriter II	
1D	5.25	Electric Duet	
1E	5.25	GraFORTH	

May/June 1993

2A	3.5 GS	DuelTris, Spy Hunter GS, FloorTiles, Ant Wars	
2B	3.5	SoftDAC, Magic File Cabinet	
2C	5.25	SoftDAC, Magic File Cabinet	

July/August 1993

3A	3.5 GS	ProBoot, SANE Fix, Quadronome, ShadowWrite, SoniqTracker	
3B	3.5 GS	Bulla (FTA)	
3C	3.5 GS	Bille Art (Brutal Deluxe)	

September/October 1993

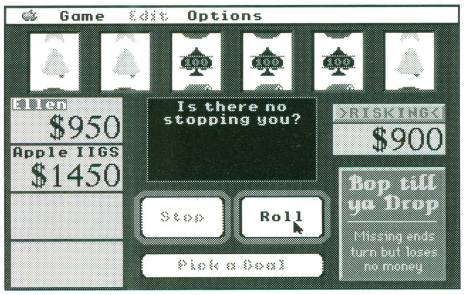
4A	3.5 GS	FixFontMgr, JumboDesk, Winflate, Mac Sound Grabber	
4B	3.5	Sound Editor	
4C	5.25	Sound Editor	

November/December 1993

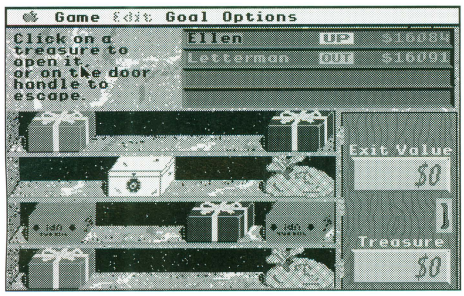
5A	3.5 GS	Plunder, One-Arm Battle	
5B	3.5 GS	Milestones 2000	

Holiday Specials

X1	3.5 GS	All IIgs programs through issue 5: 1A, 2A, 3A, 3B, 3C, 4A, 5A, 5B	$30
X2	3.5	All IIe/IIc programs through issue 5: 1B, 2B, 4B	$10
X3	5.25	All IIe/IIc programs through issue 5: 1C, 1D, 1E, 2C, 4C	$20



ONE-ARM BATTLE



PLUNDER!

One-Arm Battle

Ken Franklin, Reliefware-$10.00

One-Arm Battle is a slot machine game that can be played by one to four players, any or all of which can be the computer. The object of the game is to be the first to win the amount of money you have chosen as a victory level the Setup Menu. You do this by rolling winning combinations on the six-reel slot machine on the screen. But wait—it's a little trickier than that! Each turn is influenced by one of six goals selected at the beginning of each turn. Some of the goals include a Sweep Bonus (a money bonus for rolling scoring symbols in each reel; you can stop at any time with no penalty if you don't make the sweep), an Out of Order (lose your turn) and Bop til You Drop (my favorite-you keep going, accumulating all the money you win until you crash).

One-Arm Battle is another one of those fun, addictive games that could keep you playing "just one more" for hours. *Like Milestones 2000,* it can be enjoyed by parents and children together, by students when they're supposed to be typing reports or by adults taking a much-needed break from number-crunching.

Plunder!

Ken Franklin, Reliefware, $15.00

The last offering in Ken Franklin's pleasing threesome is *Plunder!*, another game of chance and adventure. It takes place in the treasure rooms of a dark dungeon which can hold up to four players. Any or all of them can be controlled by the computer. Each treasure room is filled with packages of various shapes, sizes and colors. Most of the packages contain money or mystery prizes, but one contains a bomb that will destroy everyone in the room.

Each player has the choice of opening one of the packages or leaving the room to avoid the bomb blast. If you choose to stay by opening a package, and if it contains a treasure, the value of that item goes into the "treasure pot." (At the end of the round, the pot is divided equally among the survivors.) If you choose to leave, you get your share of the treasure at that moment, less a wimp penalty. When the bomb is found, the room explodes; all the treasure is lost, but the players get a new life in a new room.

The game ends when one player reaches the goal score and becomes the leader. At this point, that person is locked out of the room while the others have one last chance of catching up or surpassing the leader's booty. If someone succeeds in doing that, the last-room scenario starts over again until a leader prevails for a full round.

All the Reliefware offerings contain fun sounds, are easy to learn, and come with complete documentation. Any one of them can provide many hours of family (or individual) fun. Rumor has it that Ken Franklin has been working on a new game called Monster Lab for some time now—we can't wait to see it! ■

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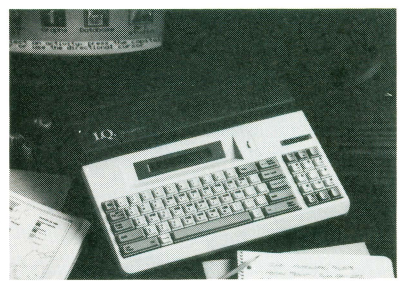
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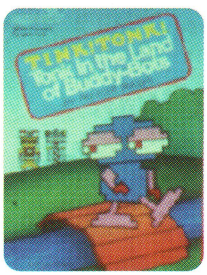
Money & Time Adventures of the Lollipop Dragon



Arithmetic Teacher says, "Overall, this software is an innovative, cheerful, and positive means of learning arithmetic through the practical concepts of money and time..." Let Lillipop Dragon help your students make sense of hours and minutes, dollars and cents. Game activities and colorful animation get youngsters to practice counting coins, using money, making change, setting and reading time. Several levels of difficulty challenge kids as they master each skill.

$24.99

Tonk in the Land of Buddy-Bots



Lively graphics and animation help teach youngsters to distinguish shapes and patterns as it stresses communication, memory and planning, and problem-solving skills. The multiple difficulty levels adapt to many student needs, while helping to promote familiarity with computers, along with pre-reading visual discrimination and one-to-one correspondence skills.

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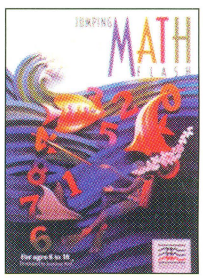
MasterType



Colorful, exciting graphics motivate students to proceed through every one of MasterType's 18 keyboarding skill levels, from letters to words and symbols. The on-screen prompts encourage students to watch the screen rather than the keyboard, and essential keyboarding skill. Develop individualized lessons, monitor students' progress in words per minute, and keep track of errors.

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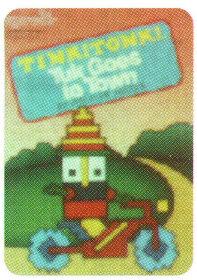
Jumping Math Flash



Make learning basic math facts exciting—and effective—with the fast action and sound options of this arcade-style mathematics drill program. Players navigate the little fish, "Jumping Math Flash," along an underwater course to find the solution to addition, subtraction, multiplication and division problems. Bu beware! Enemies lurk in the ocean depths. You must find the answer before the other fish attack!

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Tuk Goes to Town



Strengthen visual discrimination skills, practice spelling and build vocabulary with six different activities in this educational game. Each one offers varying difficulty levels that match or challenge a child's skills. Children travel to town with Tuk through four ever-changing scenes and have fun choosing from eight different vehicles for Tuk to ride on!

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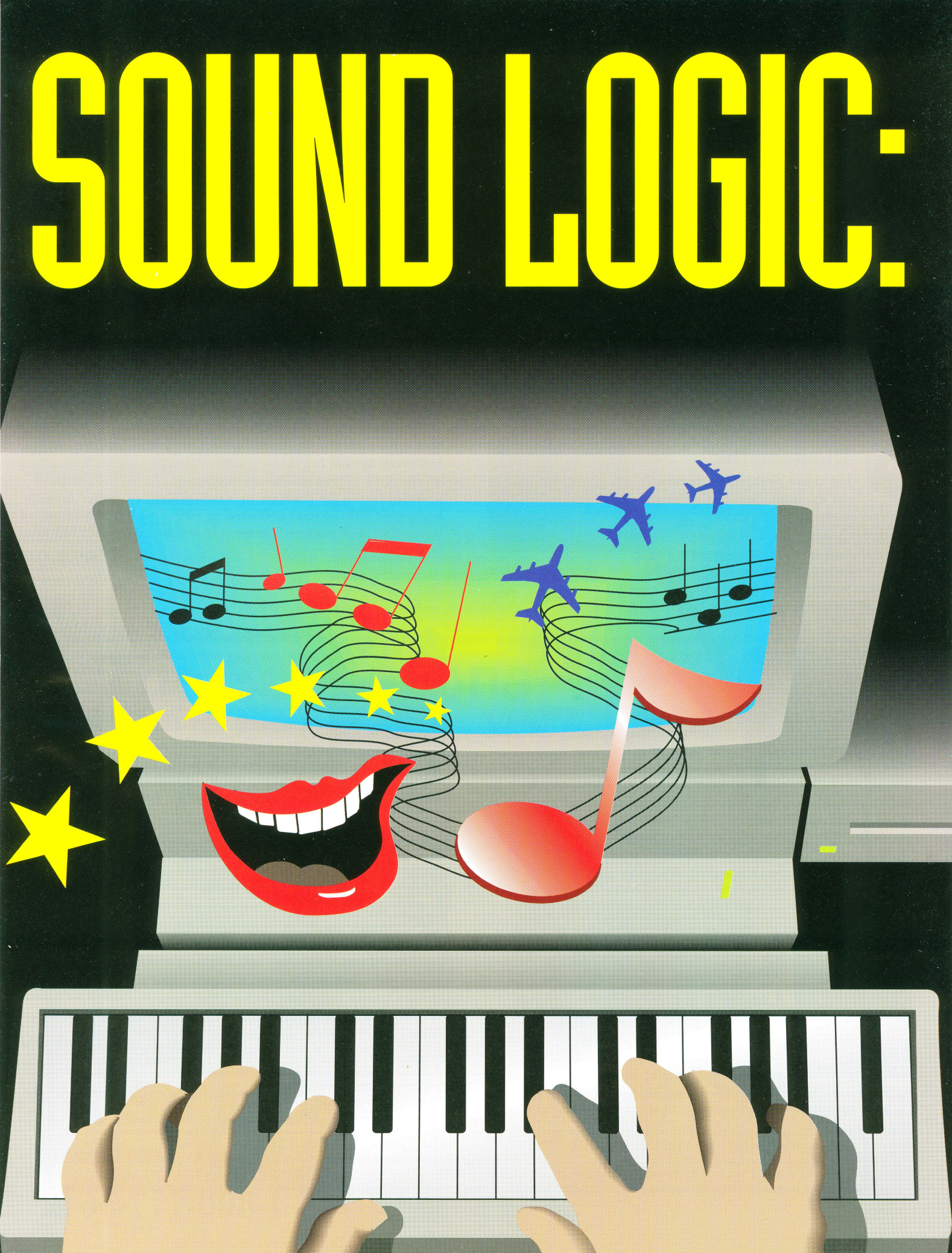
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SOUND LOGIC:



A Look & Listen at the World of Apple IIgs Sound

by Nate Trost

When the Apple IIGS was first introduced in 1986, it featured the best standard sound capabilities of any personal computer on the market. Although its competitors—the Macintosh, Atari ST and Amiga—went far beyond the simple boops and beeps of the original Apple II, none could match the IIGS.

The sounds of the orchestra float across the room, filling it with the gentle strains of a symphony. Suddenly, violins and oboes are interrupted by the jarring beat of a rock and roll soundtrack. A crowd cheers as laser blasts rock the building. Could this be a scene from a comedy sketch gone wild? No, just another routine workout for the Apple IIGS sound hardware!

When the Apple IIGS was first introduced in 1986, it featured the best standard sound capabilities of any personal computer on the market. Although its competitors—the Macintosh, Atari ST and Amiga—went far beyond the simple boops and beeps of the original Apple II, none could match the IIGS.

Even today, with a plethora of sound cards for MS-DOS machines on the market, the Apple IIGS built-in sound capabilities remain unmatched by most other personal computers. Only the very latest Atari and Macintosh computers go further than the IIGS with their built-in audio. Feats that require hundreds of dollars' worth of add-ons with other computers can be handled without breaking a sweat on your IIGS. With inexpensive hardware and software, you can push the envelope even further.

The Hardware

Before we discuss harnessing the audio horsepower of your Apple IIGS, let's take a peek under the hood and see exactly what makes the IIGS such a powerful performer.

Apple had originally planned to include only simple sound functions in the IIGS—a simple synthesizer that would be a substantial improvement over the old Apple II sound capabilities, but nothing spectacular compared to what we're used to. Fortunately for us, someone told them about the Ensoniq 5503 Digital Oscillator Chip.

The Ensoniq (say "n-sonic") 5503 is the same chip used in Ensoniq's Mirage sampler and ESQ-1 synthesizer, both professional musical instruments sold in the '80s. The Ensoniq chip allows the IIGS to play as many as thirty-two independent sound samples simultaneously. These samples are digital recordings of sounds, and can be representations of real-world sounds or totally artificial sounds designed completely inside the computer. The 5503's flexibility makes it perfect for use as a one-shot sample player (for example, playing back a Star Trek sample when you start up your computer) or as a synthesizer, building short samples of waves into more complex musical arrangements.

The 5503 has 64K of dedicated RAM which holds the sound samples. This RAM is accessible by both the IIGS microprocessor and the Ensoniq chip, thanks to the Sound GLU (General Logic Unit) chip, and is known as the DOC (Digital Oscillator Chip) RAM.

In addition to these chips, the IIGS features amplification circuitry that takes the output from the 5503 and drives the speaker and headphones. This circuitry was redesigned for the ROM 03 version of the IIGS to reduce the amount of noise and hiss in the outputs. There's also a sound connector on the IIGS motherboard which can be used to connect an external amplifier or a stereo card and to pipe signals into the chip for recording.

The System Software

All that hardware of the IIGS wouldn't make much noise without software to tell it what to do. To its credit, Apple didn't leave programmers to write their own sound tools. Over the past seven years, Apple has developed (and continuously improved) several software tools as part of the IIGS System Software.

The majority of these tools are part of the Apple IIGS Toolbox, a library of standard routines included in ROM and on the System Disk. The tools provide a standard way of developing Apple IIGS programs, and allow software developers to take advantage of the hardware's power without having to know every low-level detail of how the machine works. There are also tools for the everyday user—the Sound Control Panel is a prime example of this sort of tool.

Although the sound tools appear as anonymous tool files in the TOOLS folder on the System Disk, many games and applications rely on them. One of the first tools Apple provided for sound was the Sound Tool Set. The purpose of the Sound Tool Set is to give programmers an easy way to play digitized sounds (mostly useful for sound effects, not usually for music) in their programs. Apple built on

this base with the Note Synthesizer and Note Sequencer, which allow developers to add real music to their programs. Many of the games and music programs released for the IIGS rely on these tools to do the work of playing the notes of the music.

Next, Apple created the MIDI (Musical Instrument Digital Interface) Tool Set. MIDI is an industry-standard protocol for connecting synthesizers to each other and to computers. MIDI is not sound—instead, MIDI carries the "events" (note on, note off, etc.) which the performer generates as he plays a keyboard. The MIDI Tool Set gave developers of music sequencing programs a tool to bridge the gap between MIDI instruments and the IIGS.

To reduce the large amounts of memory and disk space required by digitized sound, Apple developed the ACE (Audio Compression and Expansion) Tool Set. With the ACE Tool Set, developers have an easy and standard way to compress large sound files. The ACE Tool Set even lets programmers choose the desired compression ratio (the more compression is performed, the poorer the fidelity of the sound when it is de-compressed).

One of the most innovative and amazing IIGS sound tool sets is also, sadly, one of the least used. The MIDISynth Tool Set, developed by a programmer from Ensoniq, improves on the abilities of the Note Synthesizer, Note Sequencer and MIDI Tool Set to provide an incredible base for music sequencing and stunning sound synthesis. With MIDISynth, the computer can actually become a synthesizer, sequencer, and MIDI instrument in one package. Unfortunately, to date, only a single application from Apple and a handful of games have taken advantage of MIDISynth's power.

In addition to all the programming tools, Apple has created several extensions and applications that give users the ability to take advantage of IIGS sound.

The Sound Control Panel is greatly improved in System Software 6.0. Previously, this control panel was limited to adjusting the pitch and volume of the standard system bonk. With System 6.0, the Sound Control Panel lets you customize your system by assigning sounds to various "events." Cows can moo when you start up your system; evil laughter can resound when you empty the trash in the Finder; Arnold Schwarzenegger can intone "I'll be back" when you shut down the system. Dozens of different events can be assigned to any sound file you wish!

Another Apple program released with System 6.0 is SynthLAB. SynthLAB is a music sequencing and playback program that uses the MIDISynth tool. Although simple, SynthLAB is a prime example of the power of MIDISynth. You can not only play SynthLAB songs created by other people, but you can also create original songs. If you have a MIDI-compatible musical keyboard, you can even compose songs with synthLAB from your keyboard!

Enhancing the Hardware

Although Apple threw in the kitchen sink when they designed the sound hardware, third-party vendors still had plenty of add-on opportunities, including the following.

Stereo Sound

One of the major shortcomings of the Apple IIGS sound system is the output. The small speaker inside the IIGS cannot do justice to the Ensoniq's sound quality. Sounds are distorted at high volumes, bass sounds weak, and the clarity leaves much to be desired.

With a simple Y-cable, you can connect the headphone jack of the IIGS to a set of amplified speakers or to your home stereo system. However, for a real boost in sound quality, you will want a stereo card. These cards not only permit the IIGS to be hooked up to an external amplifier, but also add support for true two-channel stereo sound, which many programs (including SynthLAB, SoundSmith, Out of This World, and dozens of other titles) automatically use. No special configuration is required once the sound card is installed.

Since the introduction of the IIGS, several different brands of stereo sound cards have been sold. The SoundMeister card, from ECON Technologies, is the only card currently available on the new equipment market. The others are all out of production, but you may be able to pick one up at a swap meet.

Digitizing

A sound digitizer card is a useful and fun add-on. With a sound digitizer, you can record sounds on your computer from a tape, CD, TV, VCR, microphone, or other audio source.

Most stereo sound cards include a digitizing feature—or offer it as an option. You can also use a slotless digitizer card like the one includ-

Figure 1: Apple IIgs Sound Hardware Add-ons

DEVICE	MANUFACTURER	EXTERNAL	DIGITIZING	MIDI IN/OUT	PRICE
SuperSonic	MDIdeas	Y	Optional (2)	N	N/A (1)
SuperSonic Professional	MDIdeas	Y	Y	N	N/A (1)
GStereo	Applied Ingenuity	Y	N	N	N/A (1)
Sound Ace	Parallax	Y	Y	N	N/A (1)
FutureSound	Applied Visions	Y	Y	N	N/A (1)
Sound Blaster	Applied Engineering	Y	Y	N	N/A (1)
Audio Animator	Applied Engineering	Y	Y	Y	N/A (1)
HyperStudio Digitizer	Roger Wagner Publishing	N	Y	N	(3)
Apple MIDI Interface	Apple Computer	N	N	Y	$99
SoundMeister	ECON Technologies	Y	Y	N	$79.95

1 No longer sold or actively supported, may be available used
2 Digitizing is optional with piggyback card that plugs into SuperSonic card
3 Included at no extra cost in the HyperStudio software package along with microphonea

ed with *HyperStudio*. It won't provide stereo sound output, but it also won't take up a slot. Generally, these cards are merely pre-amps to boost a microphone signal to the level required by the Ensoniq chip, which does the actual digitizing work. (The digitizing feature on most stereo cards works similarly—except for the Audio Animator, which had its own digitizing hardware which was of significantly higher quality than the Ensoniq's. If you're into recording your own sounds, see if you can pick up a used Audio Animator.)

You also need software to digitize sounds. Most such software also has editing features which will allow you to cut and paste sounds together. If you buy a new digitizer card, it will come with its own software. If you purchase a used digitizer card and the original owner has lost the bundled software, you can still digitize by using one of several general-purpose GS sound programs, including U.S.E. and AudioZap. These programs will be discussed in detail in our next installment.

Once you have the digitizer and the software, you're all set. There are many programs you can use to take advantage of all the custom sounds that you can record, so be sure to tune in next issue to learn about them.

MIDI

As we mentioned earlier, MIDI is a standard that allows electronic instruments to share music performance data with each other. Since only the notes are transmitted, not the actual sound, it's easy to edit your music when it's stored in MIDI form, changing the sound on your keyboard or synthesizer as the notes play until you find exactly the right sound.

While nearly all keyboards that cost more than $100 have MIDI, they're not the only kinds of instruments that can talk MIDI. Drum machines and electronic drum pads, guitar synthesizers, and even wind controllers (sax or flute) are available with MIDI. And since MIDI is a standard serial data stream, computers can easily talk MIDI, too.

With a program called a sequencer, the computer functions as a tapeless tape recorder. You can record your performance, then correct your mistakes (even auto-correcting notes played out of time with a feature called quantizing) and play it back. While playing back your first track, you can record a second track—in effect, playing a duet with yourself. Depending on the kind of keyboard or synthesizer you have, you might even be able to use a different sound for each part.

When you're using a MIDI sequencer, your computer is generally not involved in making sound (unless you are using software, like SynthLAB, which is specifically designed to convert incoming MIDI messages into sound). MIDI therefore requires one or more external synthesizers, besides the computer. (Once you have one keyboard, you can buy additional "sound modules" which are basically MIDI-driven synthesizers without keyboards. You can play these instruments, via MIDI, with your main keyboard or via computer.)

To send and receive MIDI data, your computer needs a MIDI interface. The simplest and most popular such interface is the one sold by Apple. However, other interfaces, such as Opcode's Midi Translator, are compatible with Apple's, while being less expensive and sporting more features. These interfaces plug into one of your computer's serial ports. You may also run across some MIDI cards that go inside the computer, such as Passport's. The AE Audio Animator, in addition to its stereo and digitizing features, also has a MIDI interface.

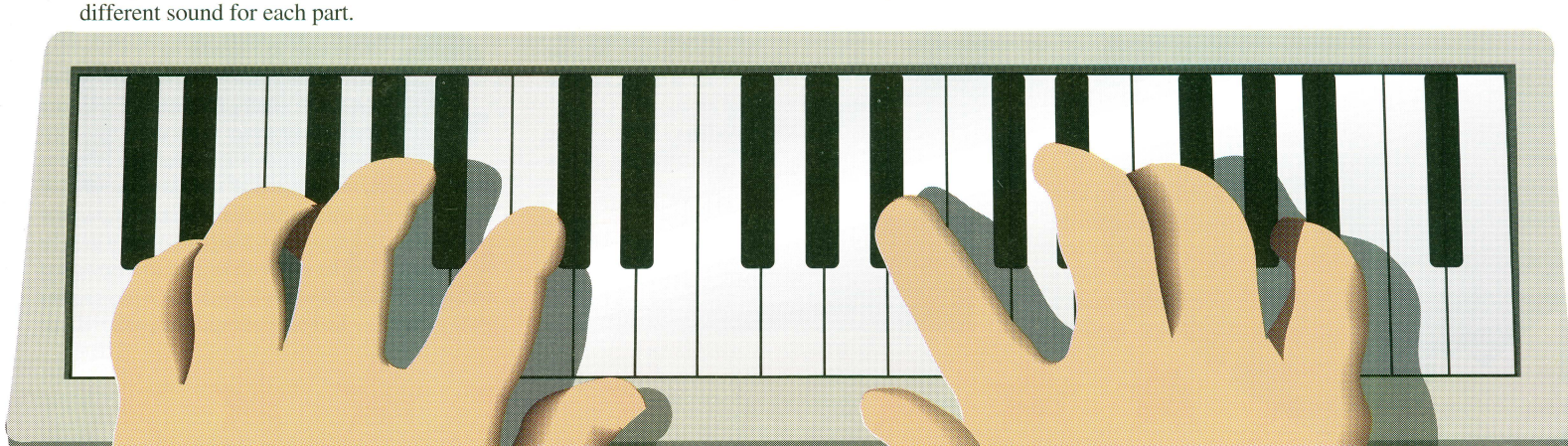
Using MIDI with the IIGS System Software requires a device driver. Apple includes drivers with System Software 6.0 for external (Apple) and internal (Passport) MIDI interfaces. Applied Engineering includes their own driver with the Audio Animator. The System Software also includes a MIDI Control Panel to let you configure your MIDI setup.

A discussion of MIDI instruments is well beyond the scope of this article. Looking through a music magazine or visiting a music store will give you an idea of what kinds of instruments are available and for what price. A MIDI compatible keyboard alone can range anywhere from a couple hundred dollars—to tens of thousands of dollars. As is usually the case, you generally get what you pay for.

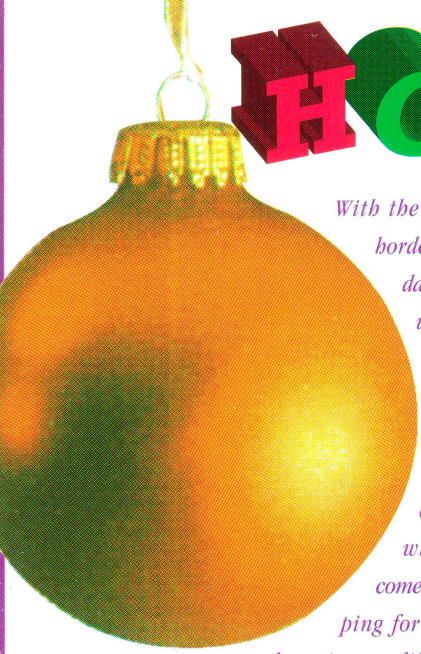
Next on Stage...

Next issue we'll dive into the wealth of sound software available for your IIGS. There are dozens of great public domain, freeware, shareware and commercial products that can help you have fun with the 's' in your IIGS. See you then! ■

The Sound Control Panel is greatly improved in System 6.0. Previously, this control panel was limited to adjusting the pitch and volume of the standard system bonk. With System 6.0, the Sound Control Panel lets you customize your system by assigning sounds to various "events."



HOLIDAY SHOPP

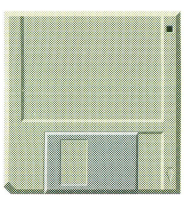


With the ravening hordes of holiday shoppers whipped into a buying frenzy, it's tough to remain calm. But when it comes to shopping for the Apple lover in your life, you can keep your cool while staying warm with II Alive's Holiday Shopping Guide.

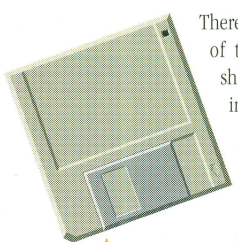
If you are the Apple II enthusiast in your family, your mission is simple. Examine the gift suggestions, circle the ones you'd like to receive—preferably in red or a nice fluorescent pink—and, in the margin, jot "looks good", "wow!", or "must-have" (or something more subtle, along the lines of "if only..."). Then leave the magazine where someone else can find it, and let human nature take its course.

$25 AND UNDER

1



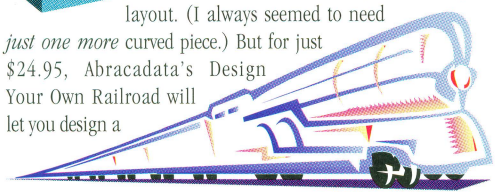
Good computer gifts don't have to be expensive. Buy a box of blank disks (if you can't find one for around $10, start wondering if you're being taken advantage of) and fill it shareware and freeware. Downloads from services such America Online, CompuServe, and GEnie are relatively inexpensive, and the local Apple II users' group may have a library you can plunder for a small fee. *(II Alive's* Shareware Spy (see page 25) also distributes disks of shareware.) The fun of having 10 disks full of programs to explore over the holidays can hardly be topped, and the gift of the time you spent to find quality programs will be greatly appreciated. As the recipient identifies shareware programs he or she doesn't want to pay for, he or she can delete them and re-use the disks.



There's always the alternate version of the same plan: Download a shareware program and pay for it in the recipient's name! Copy the program to a disk that will boot the program, and enclose a note that the shareware fee has been paid. Apple IIe and IIc owners might like Charles Hartley's typing program, Computer Keyboarding, which is only $10; Apple IIGS folk might prefer Ken Franklin's reliefware game Milestones 2000, which is only $15—all of which goes to help the homeless.

2

One of my fondest childhood holiday memories is sprawling out on the floor with a new train set. The only problem was that, no matter how large the set, there were never enough pieces of track to make a *really* interesting layout. (I always seemed to need *just one more* curved piece.) But for just $24.95, Abracadata's Design Your Own Railroad will let you design a



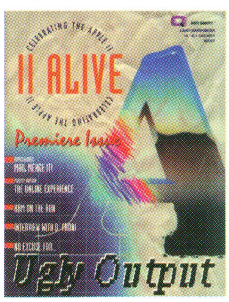
wonderfully involved system on *any* Apple II with 128K. A delightfully simple program that very few people seem to know about... and you'll never run out of pieces of hi-res track.

3

I use my Apple IIGS for hours at a time, and one of the things that bugs me is hunching down to get a good look at the monitor screen. If the Apple II lover on your gift list has the same problem, he or she will love the 13" monitor stand (part #956-272) sold by Sun Remarketing for just $14.00. It tilts, swivels, pivots, and fits the AppleColor RGB monitor perfectly! Kensington's Apple IIGS Anti-Glare Filter (a closeout item available for under $10 from mail-order retailers like Quality Computers) is another perfect monitor add-on, as is Crystal Clear Screen Cleaner (under $8 a bottle).

4

How about a gift subscription? *II Alive* is only $19.95 for a year (six issues)—order a subscription for a friend! Or why not try *Shareware Solutions II,* the newsletter published by former *inCider/A+* contributing editor Joe Kohn that's been getting rave reviews with Apple II owners? It's just $25 for 12 issues. Perhaps a trial-size 3-month subscription to *Softdisk,* the magazine on disk for any model of the Apple II with 64K memory? It's just packed with programs, and costs just $19.95. There's a IIGS version, too, for just a few dollars more.



5

Let's not forget games! Big Red Computer Club and Quality Computers both have games that are bargain-priced simply because they've lost the first blush of youth. *Transylvania III* for the IIGS for only $14.95? *Dungeon Master* for the IIGS for $25.00? How can you miss at those prices? Call for a free catalog and see how long the game lists are!



6

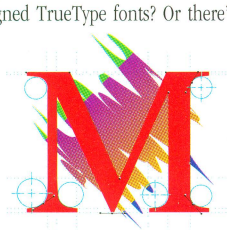
Resource Central has some excellent books in stock, many of which are difficult to find anywhere else. Anyone who wants to learn machine language could hardly do better than to learn at the feet of the master, Roger Wagner (patron saint of the Apple II). For Apple IIe and IIc programmers, there's *Assembly Lines: The Book;* for Apple IIGS programmers, *IIgs Machine Language for Beginners.* You can pick up either for $19.95.

If machine language is a little deeper than you wanted to dig, how about Will Nelken's *Ultra-AppleWorks?* This UltraMacros tutorial will teach you the power of AppleWorks macros for just $19.95.

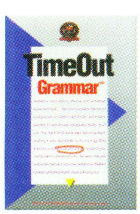
$50 AND UNDER

1

If you know a IIGS user whose life was altered by the installation of *Pointless,* the WestCode TrueType font interpreter, then you can be sure that person will welcome a Pointless add-on this holiday. How about TypeWest, a collection of 40 professionally designed TrueType fonts? Or there's the newest addition, TypeSet, which will provide a What-You-See-Is-What-You-Get Font menu (instead of all font names being printed on the screen in Shaston, each TrueType font will be shown in its own typeface), plus create custom sets of fonts for various applications (no more scrolling through long lists of fonts), and print font reports. Both these program list for $49.95, but if you hustle, you may still find them at the sale price of $29.95.



2



Serious and even casual writers will benefit from the newest TimeOut AppleWorks add-on, *TimeOut Grammar* ($49.95, Quality Computers). This grammar-checker can be made to check for outright errors (such as, "He won't loan me his disk drive," "So try and borrow it again tomorrow"—and if you didn't spot the errors in both those sentences, then you need this program) but can also make your writing clearer and more concise by eliminating wordy and pompous phrases. Now that AppleWorks has a spelling checker, a thesaurus, and a grammar checker, you won't have to spend your whole life regretting having dozed off in English class.

3

If you leave your monitor on for a long time, and the same picture is always displayed on the screen, eventually the image will burn itself into the screen. If you didn't care about the potential for being labeled the most boring person in recorded history, you could make sure you turned off the monitor every time you moved away from your computer for a moment. Or you could get *Twilight II,* a screen saver for the IIGS, which lists for $49.95. If *Twilight II* doesn't detect some activity after a given period of time, it'll start showing pretty pictures — fireworks, worms, moire patterns, and

ING GUIDE

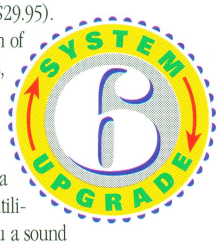
by doug cuff

bouncing digital clocks — over as much of your screen as possible in an effort to ward off the dreaded phosphor burn. And yes, there's a snow pattern just right for the holiday season.

4 *The Lost Tribe* is a rare gem: an educational game that's actually fun to play. Amazing concept. Of course, it's from Lawrence Productions, who are well-known for just the sort of subtle learning experiences provided by this game. At the start of *The Lost Tribe,* a volcano has erupted all over your village, leaving only a few survivors. The remaining tribe had better move if it wants to stay alive, and they're looking to you to lead them to a new home. You'll need to exercise your decision-making and leadership skills to win through. (I guess this is the educational part.) *Lost Tribe* requires a IIGS and prefers that its players be 8 years or older. The list price is $49.95.



5 There may be nothing more useful than a system software upgrade. But as a gift, it lacks excitement. Don't let that bother you, because Quality Computers offers four bonus packs to liven up Apple IIGS System 6.0.1 ($29.95). Bonus Pack 1 ($59.95) is a collection of fonts, sounds, clip art, icons, utilities, and more. Bonus Pack 2 ($39.95) gives you more fonts, sounds, etc., plus a virus detector, art gallery, and more. Bonus Pack 3 ($29.95) is a powerful collection of 16 System 6 utilities. Bonus Pack 4 ($49.95) gives you a sound input card, microphone, sound editor, and sound effects disk.



6 When shopping for holiday gifts, I like to look for items that are just a little frivolous—something that the recipient wouldn't necessarily think of buying for him or herself. The Byte Works' *Talking Tools* ($49.95), which allows IIGS desktop programs to read documents in a male or female voice, and also allows programmers to create programs with human speech in them, is perhaps not the most *vital* programming tool around, but it certainly *is* one of the most fun. Another good Byte Works buy is ORCA/Integer Basic, a compiler for the old BASIC language built into the original Apple II. In addition to its nostalgia value, it comes with complete source code so budding hackers can learn to write their own compilers.

$100 AND UNDER

1 Probably the ultimate holiday gift this year is the AppleWorks 4.0 upgrade from Quality Computers. Upgrades from AppleWorks 3.0 cost just $79.95 ($99.95 from version 2.0 or 2.1). The new version includes features too numerous to mention here; check the in-depth coverage in the last couple of issues of *II Alive.* All in all, this upgrade is a must-have.

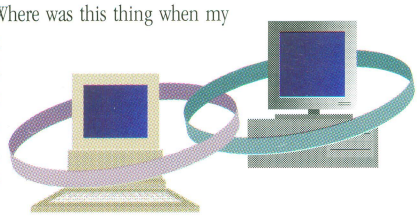
2 If I didn't know that Infocom made the best text adventure games in the business, I'd probably react with considerable skepticism to the *Lost Treasures of Infocom* anthology for the IIGS (from Big Red Computer Club). Just $59.95 for 19 games? It sounds as though none of the games could possibly be worth owning, but just wait till you see. You're going to love *Planetfall.* Or how about *Hitchhiker's Guide to the Galaxy,* based on the smash sci-fi humor novels by Douglas Adams? No, wait, try *The Lurking Horror.* What? You've never played an adventure-type game before? Oh. Well, just sit down here with *Moonmist*...

3 One of the most entertaining hardware add-ons is a video digitizer. If you have a video camera or camcorder, the ComputerEyes IIe ($99.95 from Quality Computers) will allow you to create digitized single- or double-hi-res pictures of anything that will sit still for about six seconds. (If your camcorder has a good freeze or still function, you can just freeze the image for the required time period.) It's a kick to see your own picture on your computer—nothing else comes close for pure fun value!

4 If you've never programmed your IIGS, maybe The Byte Works 3D Logo ($59.95 introductory price, list $95.00) is the place to start. Logo is a language that works the way the human brain works, and it's so simple that it's regularly used in schools as an introduction to programming. Don't take it lightly, though; it's also a descendent of powerful Artificial Intelligence languages. 3D Logo comes with special 3-D glasses that you can wear to actually see three-dimensional effects right on the computer screen. For those who can't seem to drag their kids away from the computer, this could be the perfect way to spend a little "quality time" with them this holiday season.



5 Once upon a time, I'd have begun this segment by cautioning that this utility is not for everyone—but these days, very few Apple II users can't find a use for *Cross-Works* ($69.95), because everyone seems to have a friend and co-workers who use IBM-compatible computers. *Cross-Works* allows you to transfer files between an MS-DOS computer and an Apple II. It'll convert WordPerfect, dBase, and Lotus 1-2-3 files, to and from the appropriate AppleWorks module—and do it painlessly, providing a cable pretty much guaranteed to hook any IBM-compatible to any Apple II and program disks for both computers in both disk sizes. Where was this thing when my friend in a far-off land insisted on sending me letters on MS-DOS disks?



6 If there's one thing that an Apple II user needs today, it's support. The best place to get support is from other Apple users, and the best place to find other Apple users is in the online community. To get online, all you need is a modem and communications software. If you can't find a 2400-baud modem for less than $100, then you probably haven't actually looked yet! Quality Computers' Q-Modem 2400 ($79.95) is pretty much ideal for someone who's just beginning and doesn't have cash to spare. If you have AppleWorks GS, its communications module is an ideal place to start; otherwise, freeware and shareware programs like Comm.System and ACT can bridge the gap until you're sure you want to invest in more powerful communications softare (like *ProTERM 3.1).* Once you get online, you'll be surprised at all you've been missing!



VENDOR INFORMATION:

Big Red Computer Club
423 Norfolk Avenue
Norfolk, NE 68701
402-379-4680

ByteWorks
4700 Irving Blvd N.W.,Ste. 207
Albuquerque, NM 87114
505-898-8183

Quality Computers
20200 Nine Mile Road
St. Clair Shores, MI 48080
1-800-777-3642
(313) 774-7740

Softdisk Publishing
PO Box 30008
Shreveport, LA 71130-0008
1-800-831-2694
318-221-8718

Resource Central
P.O. Box 11250
Overland Park,
KS 66207-1250
913-469-6502

Sun Remarketing
P.O. Box 4069
Logan, UT 84323
1-800-821-3221
(801) 755-3360

WestCode
15050 Avenue of Science,
Suite 112
San Diego, CA 92129
619-487-9200

Shareware Solutions II
166 Alpine Street
San Rafael, CA 94901



CRASH AND BURN PART 2

by Nathaniel Sloan

A crash to the monitor may be one of the most frustrating things an Apple user can encounter. Not only do you have no clue what happened, you also have no obvious way to resume the program.

In the first installment of this two-part article, we discussed some of the error messages you might see as you used application programs from day to day. These error messages came from ProDOS, BASIC, and GS/OS. To conclude our coverage, we'll take a look at the more insidious problems you can encounter—lockups, crashes, and fatal system errors.

Dealing With Lockups

When the computer just seems to stop responding, you may have encountered a lockup (or freeze, or hang—the terms are equivalent). If the computer beeped just before freezing up, you may actually be experiencing a crash; try hitting Control-T, Return on a IIGS or C051, Return.

The first thing to do when you think a program has locked up is to check the obvious. For example, if you told the program to print, and nothing is happening, make sure that your printer is properly connected and turned on. If all that seems to be in working order, check your Control Panel settings (if you have a IIGS) and the printer selection in the Control Panel or the program itself, restart, and try again.

If the problem recurs, wait it out. Even if a program has never locked up on you before, that doesn't mean that it might not occasionally be considered normal behavior. (Applesoft programs that run under DOS 3.3 can fall prey to a process called garbage collection which can make the computer unresponsive for minutes at a time—see "Ask Mr. Tech." in the July/August issue.) Give it five minutes, or more.

If the lockup happens when you are trying to load or save files, and you have a IIGS with a third-party 3.5" drive, try putting a formatted disk in your empty drives. Some third-party drives can "hold up" the system when GS/OS is scanning for a disk.

Try pressing Escape, Control-C, Apple-Period, and other standard "cancel" keys. Click the mouse repeatedly. If the program responds by giving you control back, then you know that the program was simply waiting for something to happen (a disk to be inserted, or whatever) and wasn't truly locking you out. This can often clue you in on what, exactly, you should be doing—"Oh, duh, of course it's waiting for me to put in the program disk."

If the computer really is frozen, press Control-Reset. Some software allows you to return to the program's main menu with this keypress, while other software will simply restart the computer (or crash or hang even worse). If you're still in the program after hitting Control-Reset, though, save your files immediately (under a different name so that you don't erase your originals in case the new copies were somehow damaged by the malfunction) and try the operation again.

If all else fails, you may be the victim of a System Software conflict, a hardware problem, or a bona fide program bug.

Dealing With Crashes

A crash to the monitor may be one of the most frustrating things an Apple user can encounter. Not only do you have no clue what happened, you also have no obvious way to resume the program.

A well-written program, in theory, will never crash. However, as a fellow named Murphy proved, theory doesn't always hold in the real world. When you encounter a crash, make a note of the message printed on the screen (see Figure 1 for a sample) and keep it handy in case it becomes necessary to contact the publisher of the software. The information printed on the screen in the case of a crash to the monitor can help the programmers pinpoint the source of the problem.

Most crashes are not recoverable. You can try Control-Reset; if you were running a BASIC program, you can also try Control-C followed by Return and a RUN command. In most cases, however, you can assume a bug in the program, a system software conflict, or a hardware problem.

Dealing With System Software Conflicts

System software conflicts can cause all sorts of annoying problems, including lockups and crashes—especially on the Apple IIGS, which has literally dozens of interrelated files that make up the system software. If you've added programs like *Pointless, Signature, Six Pack, Twilight, Kangaroo,* and other desk accessories, control panels, or INITs to your startup disk, you have even more potential for trouble. If a program is incompatible with Apple's software, it's obvious who needs to fix the prob-

lem, but if two non-Apple software packages are involved, you may see a lot of finger-pointing before the real problem is identified and resolved.

That's not to say that Apple's system software is without bugs. The first release of ProDOS 8 2.0, for example, had a bug which caused systems to crash if the user had more than 14 disk devices attached to the computer. This limit was easy to exceed if you had a hard drive with a RamFAST/SCSI controller, since both ProDOS and the RamFAST tried to remap hard drive volumes into unused slot/drive combinations. This meant that each hard drive partition would end up in being "seen" twice. A moderate-sized hard drive with five partitions would generate ten drive entries; add a couple 3.5" drives, a 5.25" drive, and a RAM Disk, and you crashed. Both Apple and the manufacturers of the RamFAST/SCSI card provided a solution to this problem.

More recently, a bug in the System 6 font manager caused a conflict with *Pointless,* the third-party software which allows Apple IIGS computers to use TrueType fonts. If you had a TrueType font but no bit-mapped (standard) versions of the font, the system crashed when you tried to use one of those fonts. An INIT to fix this bug was quickly released by Softdisk, and its functionality was later incorporated into a new version of *Pointless.*

To see if a particular crash or lockup is the result of a system software conflict, try starting up the computer while holding down the Shift key. Under System 6, this causes the computer to skip the loading of any control panels, desk accessories, or INITs which normally load at startup. (If you use an older version of the System Software, or even if you use System 6, try starting up your computer from a fresh copy of the 3.5" System Disk.) Then try to recreate the problem by following the same steps that caused it originally. If the problem does not recur, you have likely discovered a conflict with one of the desk accessories, INITs, or control panels on your startup disk. Remove all the non-Apple files from the Desk.Accs, System.Setup, Control.Panels, and FinderExtras folders inside your System folder, then place the items back in one at a time (restarting after adding each) to see if the problem recurs. When the problem recurs, the conflict lies in the last file you added.

Once you have pinpointed the potential conflict in this way, contact the publishers of the software involved. It is possible—even likely—that one or the other company is already aware of the problem and has released a revision that solves it.

If the problem continues even after booting with the Shift key down (or from a floppy disk), and the program that's crashing is rather old, try older versions of the system software. If you normally use System 6, get a System 5 startup disk and try that. Try System 4 if the program doesn't work under System 5. While Apple tries to maintain compatibility between versions of the system software, software has to follow Apple's programming guidelines to guarantee full compatibility with all versions. Old programs written before this lesson was learned sometimes don't work properly with new system software. (A prime example of this problem is *Paintworks Gold,* which was released under System 4 and was later found incompatible with System 5. Worse, the publisher wasn't interested in upgrading the software. Luckily, a one-byte patch was discovered to solve the problem.)

Hardware Problems

As if you didn't already have enough to worry about, it's possible that some crashes or hangs may actually be the result of a hardware problem—especially if they occur frequently and in many different programs. This is not intended to be an in-depth discussion of hardware diagnosis and repair, but there are a few simple things you can check. You should check every other possible problem before assuming that you have encountered a hardware glitch, since hardware problems are, in fact, quite rare.

Don't overlook the computer's built-in self tests (Apple-Option-Control-Reset or both-Apples-Control-Reset). (Some accelerators, such as the Zip GS, will cause the self-test to fail in various ways—this is normal and does not indicate an actual malfunction. Don't forget to check the manual if you have an accelerator.) Also run any other diagnostic software you have on hand—for example, an accelerator diagnostic disk or memory test software (AppleWorks GS comes with a memory tester if you didn't get one with your memory card). This may help you pinpoint the problem without even opening your computer. If you have an accelerator, make sure it is set to run any slot with a disk interface (usually slot 5 and/or slot 6) at slow speed.

Important! Before taking the top off your computer, make sure it's turned off (but leave it plugged in). Touch the computer's power supply frequently to drain chip-damaging static electricity from your body.

First, check all the socketed chips on your computer's logic board. Press them down firmly with your thumb to ensure that they're seated properly, and visually inspect them to make sure the pins actually go into the sockets and are not bent under the chips. Check your peripheral cards for grunge on the gold connector fingers; if you find any, clean the fingers by lightly rubbing them with a soft pencil eraser. (Lightly! The gold is soft and can be removed if you rub too vigorously.) Make sure the cards sit snugly in their slots; they should not rock or wobble. Similarly, check all the cables connected to your computer to make sure none of the pins are missing or bent and that all are firmly connected. If you have a SCSI hard drive, make sure it's properly terminated. If you have more than one SCSI hard drive, only the last should be terminated.

If you have a lot of cards in your computer (more than two), you may be running into a heat problem. (If your system occasionally gives you a Fatal Error 0911, excess heat is almost certainly the culprit.) Your computer's chips depend on being able to shed heat into the air inside the case. When the air becomes as warm as the chips, this is no longer possible, and the chips will begin to overheat. (A layer of dust in the computer also serves to keep heat inside chips.) The most sensitive chips seem to be the ADB (keyboard/mouse) chip and the high-speed processor chips found in accelerators.

To diagnose a heat problem, leave the top off your computer and run it that way for a few days. If the problem goes away, the problem is probably heat; get a fan. (If you already have a fan and are still having heat problems, you may have more serious troubles; something inside the computer is becoming far hotter than it was intended to be, or one of the chips is excessively sensitive to heat.)

If you have more than four cards in your computer, you may be overstressing the power supply. An overstressed power supply creates a "brownout" condition inside the computer, and power-hungry peripheral cards may not function properly. Try pulling out a few cards for a while and see if the problems continue. If not, try a heavy-duty power supply.

Some peripherals are simply incompatible with each other, or with certain software. As a last resort, contact the manufacturer of the card that's giving you trouble and pick their brains about potential problems.

Fatal System Errors

As we mentioned, the "fatal" in Fatal System Error doesn't mean that your computer is about to explode. It merely means that a situation exists that prevents the computer from continuing to run your program. You must reboot to continue using the computer. Usually, these errors are caused by software problems and do not indicate a hardware malfunction. Here are a few of the more common ones:

Can't load/unload resource. You may have a damaged disk or the wrong disk is in the drive. Check that the proper disks are in the drives and try again. If that fails, boot with a new copy of the System Disk and re-run the program. If that works, the system software on

Figure 1: A Crash To The Monitor

```
Non-IIgs Apple IIs:
4EA4: A=42 X=71 Y=AF S=D8 P=11
*

Apple IIgs:
04/4EA2: 00 00      BRK   00
A=0110 X=0014 Y=00AF S=13F0 D=0800 P=10 B=09 K=04 M=0C Q=80 L=1 m=0
x=1 e=0
```

your hard drive may be corrupted; you should re-install it from your master disks. (You may also have a system software conflict; see the appropriate section above.) Otherwise, you may have found a legitimate program bug.

Damaged Heartbeat Queue Detected ($0308), *Damaged Queue Detected* ($0681), *Queue Handle Damaged* ($0682). These errors usually indicate that some program is "stomping on" memory that doesn't belong to it—meaning that there's a bug in the program that's corrupting memory. The difficulty lies in determining exactly which program is causing the problem. If you get the error seemingly without cause in a lot of different programs, then the culprit is probably in one of your system software components. If the error happens in one particular program, it could still be a conflict between that program and something in your System folder, but it's more likely to be a bug in the application itself. A final possibility is that there is a defect in your memory expansion card.

Screen Reserved ($0410), *Out of Memory* ($0201). These errors mean that the computer can't get some memory it needs. Often, this is a result of a low-memory situation. However, it can also mean that memory has become fragmented—filled up with individual chunks of data with no way to join the free memory into one big chunk. You may be able to simply reboot and not see the error again; however, you may want to expand your memory or reduce the amount of memory required to boot your system by removing some of the INITs, control panels, or desk accessories in your System folder, all of which eat up memory which could otherwise be used for applications. A temporary solution is to boot with the Shift key held down so that none of these add-on programs are loaded.

. . . the "fatal" in Fatal System Error doesn't mean that your computer is about to explode. It merely means that a situation exists that prevents the computer from continuing to run your program.

Parting Shot

Most of the problems you encounter with your computer can be solved easily. But even though errors aren't difficult to deal with, it's better not to have them at all! Here, then, are some tips for error-free computing.

Back up. Back up your hard drive, your data disks, and other important files. Save often as you work, especially before doing something which you have learned from experience could crash the computer. Crashes are only a minor annoyance if you don't lose anything; they only take on mammoth proportions when you lose an hour's (or a week's) work.

Try to use only finished versions of programs. If a program has a version number less than 1.0, or if it ends in A or B (for "alpha" and "beta,") the program may be a pre-release version. You might want to think twice before using it. These programs are often seriously buggy, which is why they weren't released. A similar warning applies to really old programs which were written before System 5 was released. Try to get an updated version if at all possible.

Use solid System Software. System 6.0.1 fixes literally dozens of bugs in System 6. ProDOS 2.0.2 fixes bugs in ProDOS 2.0. The operating system is the foundation of everything you do on your computer; make sure it's stable. When a new version of the System Software is released (as with System 6), you may want to keep the old version (5.0.4 in this case) for a while, until you've had a chance to thoroughly test all your programs under the new version.

Be aware of the limitations of programs that "break rules." The IIGS was not designed to run more than one program simultaneously; therefore, there are limitations inherent in programs like *The Manager*. Not to pick on *The Manager*—any program which changes a fundamental assumption about the way the computer operates may cause problems with some applications which rely on that assumption. Programs like *HardPressed, Pointless* and *Kangaroo* qualify for this caveat, as do screen-blankers and macro programs. That's not to say that you should not use these programs, but you should fully understand *exactly* what they do before installing them. Try to avoid so-called "No-Tool" programs—they may not handle errors in a particularly friendly way.

You might notice that we didn't mention viruses. That's because a virus is the last thing you should expect as the cause of your problem. Your computer cannot spontaneously contract a virus; you must run an "infected" program to transfer the virus to the programs on your computer. You can't get viruses from data files, only from programs, and you can't get viruses just by using a modem. You certainly can't get IBM or Macintosh viruses on your Apple II. There have only been a few Apple II viruses in the history of the computer, and all have been exterminated so thoroughly that the chance of one ever "biting" you is infinitesimal. In fact, I'd suggest that a hardware problem is more likely than a virus infection.

I hope that these two articles have shed some light upon the often confusing world of errors and crashes. When you know how to handle problems like these, your computing experience can be less frustrating and more fulfilling. A little knowledge goes a long way! ■

THINGS TO TRY

WHEN PROBLEMS OCCUR

PRODOS ERRORS
Consult the table in the previous issue for an explanation of the error. You may be able to correct the problem and continue with the application.

BASIC ERRORS
If you arrive at the] prompt, list the line number mentioned in the error message. Usually these are a result of typographical errors in the program. You may be able to fix the problem and RUN the program again.

BASIC.SYSTEM ERRORS
Use the table in the previous issue to translate these to an equivalent ProDOS error message, then look up that ProDOS error. You may be able to correct the problem and continue with the program, or you may have to type RUN to restart the program.

LOCKUPS
Type Control-T, Return (IIgs) or C051, Return (IIe/IIc) to see if there's a crash or error message "hiding behind" a frozen graphics screen. Press Command-., Escape, Control-C, and other "Cancel" keys to see if the program is really hung or if it's waiting for you to do something. If the is program looking for a particular peripheral device, check to make sure the device is present and turned on.

CRASHES TO THE MONITOR
Make a note of the message displayed on your screen (it can help the programmer to determine where things went wrong). In some cases, pressing Control-Reset or Control-C, Return can recover, but not always.

SYSTEM SOFTWARE CONFLICTS
If you suspect a system software conflict is causing your crash or lockup, temporarily deactivate all INITs, control panels, and desk accessories by holding down Shift as you boot (or boot from a floppy disk). If this cures the problems, remove all third-party items from your System folder. Replace them one by one, rebooting each time, to determine which one is the culprit. Try booting an older version of the system software. Some old programs may not run with the latest version.

HARDWARE PROBLEMS
Turn off the computer before opening it. Make sure there's no dust inside the computer. Press down firmly on all the chips to make sure they're seated properly. Check the peripheral cards for dirty contacts. Run the self-test (Both-Apples-Control-Reset or Apple-Option-Control-Reset) and any other diagnostic software you have on hand. Try removing cards one at a time to pinpoint conflicts. Consider a fan and/or a beefed-up power supply if you have more than 2-3 peripheral cards in the computer.

FATAL SYSTEM ERRORS
Try to isolate the problem that caused the error. If it occurs in all programs, it's probably a system software conflict; if it occurs mainly in one program, it's likely to be a bug in that program.

MACRO EXCHANGE

(Continued from page 18)

```
s:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &    W &:                  // 2  (two)
  $5 = $5 + &WVWVW &:$6 = $6 + &W      &:
  $7 = $7 + &WVWVW &>!

t:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &    W &:                  // 3  (three)
  $5 = $5 + &WVWVW &:$6 = $6 + &    W &:
  $7 = $7 + &WVWVW &>!

u:<asr><$3 = $3 + &W   W &:$4 = $4 + &W   W &:                  // 4  (four)
  $5 = $5 + &WVWVW &:$6 = $6 + &    W &:
  $7 = $7 + &    W &>!

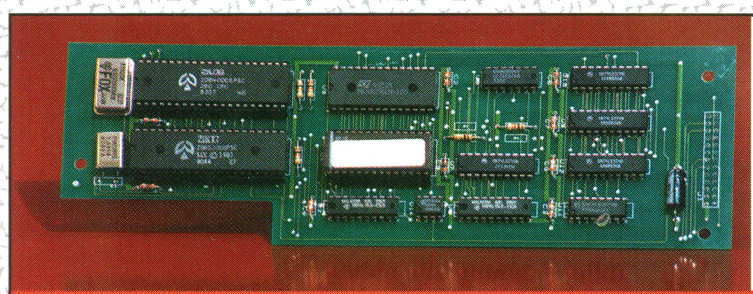
v:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &W     &:                  // 5  (five)
  $5 = $5 + &WVWVW &:$6 = $6 + &    W &:
  $7 = $7 + &WVWVW &>!

w:<asr><$3 = $3 + &W     &:$4 = $4 + &W     &:                  // 6  (six)
  $5 = $5 + &WVWVW &:$6 = $6 + &W   W &:
  $7 = $7 + &WVWVW &>!

x:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &    W &:                  // 7  (seven)
  $5 = $5 + &    W &:$6 = $6 + &    W &:
  $7 = $7 + &    W &>!

y:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &W   W &:                  // 8  (eight)
  $5 = $5 + &WVWVW &:$6 = $6 + &W   W &:
  $7 = $7 + &WVWVW &>!

z:<asr><$3 = $3 + &WVWVW &:$4 = $4 + &W   W &:                  // 9  (nine)
  $5 = $5 + &WVWVW &:$6 = $6 + &    W &:
  $7 = $7 + &    W &>!
```

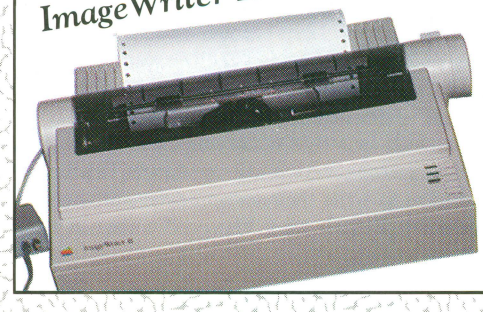
Q:talk :lto™ $79.95

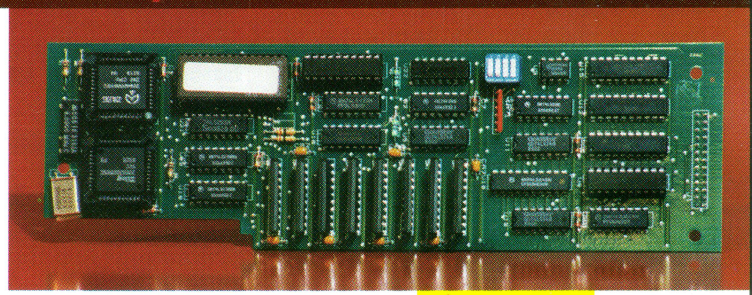
- AppleTalk interface; share ImageWriter printers!

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MS-DOS Connections

by Douglas Cuff

It happens to the best of us. At some point, for some reason or another, it becomes necessary to either read MS-DOS disks on our Apple II's or use IBMs (or compatibles) to read ProDOS disks. At first glance, this may seem like an impossible task—but all is not lost! In fact, there is not one but several ways to transfer data from Apple disks to IBM disks (and back). Some of them require you to ask a small favor from a friend with another computer, but only the most misanthropic of computer hermits will view this with trepidation.

An important thing to note before you start is that file transfer isn't the whole story, nor is it even where the story ends. File formats are also important. AppleWorks word processor files will need some massaging before *WordPerfect* will read them and vice versa. There are utilities that can help you with this. If the data you are trying to transfer is in plain ASCII text files, though, you shouldn't have many problems. Whatever the case, always transfer a small file first, then check it. Once you have verified that a small file is okay, let the transfer begin in earnest!

EMULATORS

There are many possible approaches to cross-platform data transfers. The easiest—and most expensive—solutions are hardware emulators. For Apple II computers, a product called the PC Transporter (PCT), essentially an IBM XT on a card, allows you to attach IBM-style MS-DOS 5.25" disk drives to your Apple II in order to read and write with them. A nice bonus is that you can also attach your existing Apple 3.5 drives to your PCT and read and write 3.5" IBM disks. The PCT comes with software to copy files from ProDOS to MS-DOS and back. Although it has been discontinued, it was manufactured by Applied Engineering (P.O. Box 5100, Carrollton, Texas 75011 214-241-6060). The list price, without any extra disk drives, is approximately $400, but you should be able to pick it up for $260 via mail-order houses which still have them in stock.

There is a similar "Apple II-on-a-card" solution in the MS-DOS world: Trackstar Plus, available from Diamond Computer Systems (532 Mercury Drive, Sunnyvale, California 94086-4018 408-736-2000). Like the PC Transporter, the Trackstar is not cheap—the list price is $279.

Emulators are expensive because they do more than transfer files—they allow you to run software from the "foreign" computer. The PC Transporter, for instance, will let you run *Lotus 1-2-3* on your Apple II! (However, compared to the current state of the art, a PCT is pokey and has poor graphics and virtually no memory.) If price is a problem but you'd still like to do more than just transfer files, you might find a secondhand emulator for sale. You certainly don't need an emulator if file transfer is your only goal, though.

The most elegant "cable" solution is a commercial software/hardware package called Cross-Works. It requires almost no technical knowledge (beyond how to plug in a cable) and is very easy to work with.

SPECIAL DISK DRIVES AND DRIVE CARDS

Early Apple II disk drives could not read MS-DOS disks because of fundamental differences between the way data are encoded, but the newer Apple SuperDrive (also known as the FDHD) can handle double- and high-density MS-DOS disks with ease. To use the SuperDrive on any Apple II, you need Apple's high-density drive card.

If you have an Apple IIGS running System Software 6.0.1, you'll be glad to know that there's an MS-DOS FST (File System Translator) included with it that will allow you to read (but not write) MS-DOS 720K and 1.44 megabyte disks. This FST requires either an Apple SuperDrive or a Floptical drive attached to a SCSI card.

If you have an Apple SuperDrive and high-density drive card connected to your Apple IIe or IIc, there is also a freeware program called MSDOS.COPY by Hugh McKay (of Montreal, Quebec, Canada) that can read 720K and 1.44 megabyte MS-DOS diskettes, provided the file is not more than seven directory levels deep. It was available well in advance of system 6.0.1 and does not require a IIGS. MSDOS.COPY is available on international networks such as CompuServe and GEnie or from your local Apple users group or BBS.

What if you want to move ProDOS files to MS-DOS? If you have a device capable of writing 1.44 megabyte ProDOS diskettes (such as a SuperDrive or Floptical drive), Hugh McKay has written a program for MS-DOS computers called PROCOPY, which allows MS-DOS to read these special diskettes. It too is available on CompuServe and GEnie. One version can be downloaded by an Apple II and will unpack on your SuperDrive to a MS-DOS 1.44 megabyte diskette (quite a trick!); another version, a .ZIP file, is meant to be downloaded directly to an MS-DOS machine.

There are still other hardware options: Conversion Technology Inc. (c/o Patrick L. McLaughlin, 516 12th Avenue, Salt Lake City, Utah 84103 801-364-4171) sells a card called the FDC-10 that allows you to connect 3.5" and 5.25" MS-DOS disk drives to any Apple II. It comes with an MS-DOS kernel, similar to the ProDOS kernel, which allows Apple II programmers to write their own transfer software (in BASIC, Pascal, etc.). The card comes in a

standard version at $99.95. This version requires the drive to have a separate power supply. The HP (host-powered) version costs about $40-50 more, but can power 3.5" and low-power 5.25" drives.

When I spoke with Patrick McLaughlin of CTI, he said that Quality Computers was considering marketing this card, perhaps packaged with pre-written transfer software and drives. Walker Archer of Quality Computers confirmed this, saying, "We had considered producing it, but... in order to be a really decent product for the GS it would require a driver be written for it." He also joked that if there were sufficient interest, "I could be harangued into pursuing the project again."

A similar card was once sold by ASKY Inc. (2998 Scott Boulevard, Santa Clara, California 95054 408-727-3606). Their Envoy card allowed you to attach 5.25" MS-DOS disk drives to an Apple II. The Envoy did not support 3.5" drives. It came with software that, although not elegant, worked fine. It may not still be in production, however, as the company never seemed to be in their office and did not return my calls. Another similar card was a Russian product, the fabled Liberty Disk Controller (LDC). It too came with its own software. Although Canadian-based Micol Industries made an attempt at distributing the Liberty card, in the West, it did not sell well and is so scarce today as to be almost unobtainable.

MS-DOS users who need to read Apple II disks could look into the Matchpoint card from MicroSolutions, Inc. (132 W Lincoln Highway, De Kalb, Illinois 60115 815-756-3421), which allows you to read and write 5.25" Apple DOS 3.3 and ProDOS, plus SOS and CP/M, diskettes. Matchpoint requires an 8-bit slot and may require slight modification to your PC's disk drives. Matchpoint does not, however, require you to buy new drives for your PC. This card is still available at a price of $95 but the manufacturer indicated it will likely be discontinued once the current stock runs out.

CABLE TRANSFER

If you have an Apple II and a MS-DOS computer in the same room (or less than 50 feet apart), transferring data by cable is trivial. If each machine has a modem, you can connect the modems with a standard telephone cable—without involving the phone line at all—and treat this connection as a "cable." Once you connect the two modems and start telecommunications software on each end, an "ATO" command (ATtention, Online) should be all that's needed to link the two computers. Alternately, you can build or buy a cable that will establish a similar, but faster, connection (more on that below). Doing cable transfers this way requires a little technical knowledge and the patience to play around with parameters until everything works.

The most elegant "cable" solution is a commercial software/hardware package called *Cross-Works*. It requires almost no technical knowledge (beyond how to plug in a cable) and is very easy to work with. *Cross-Works* contains program disks for both Apple II and MS-DOS computers, and a cable to connect the two machines. (The special cable has the right connector regardless of which kind of computers you have—there are two connectors on the IBM end and three on the Apple end!) *Cross-Works* works right out of the box on the Apple IIc and IIGS, but Apple IIe users will need a Super Serial Card or compatible interface. The publishers of *Cross-Works* will sell you a compatible serial card, or you can shop around for one.

Cross-Works will not only transfer files but also translate them: AppleWorks word processor to/from *WordPerfect;* AppleWorks word processor to/from *Microsoft Works;* AppleWorks database to/from dBase; AppleWorks spreadsheet to/from *Lotus 1-2-3.* Even if you don't use those specific programs on the IBM, most IBM programs can use them. Apple II users will find the AppleWorks-like interface intuitive.

Cross-Works lists for approximately $100 from SoftSpoken (P.O. Box 18343, Raleigh, North Carolina 27619 800-777-3642 or 919-870-5694); you may be able to find at a better price from mail-order houses. SoftSpoken will also sell you an extra-long 50-foot cable if your Apple II and a MS-DOS computers are close but not in the same room. Even if you use another method to transfer the files, *Cross-Works'* translation feature can still be quite helpful in converting your files. The file conversion takes place on the MS-DOS computer and can be run independently of the transfer function.

If you eschew the easy way and decide to tackle the cable transfer by your wits alone, you'll need a null modem cable. Some Apple II printer cables are nearly equivalent to a null modem cable. One Apple IIc user reported being able to run his ImageWriter printer cable directly to the MS-DOS machine's DB-25 pin RS-232 serial port. Once he had activated the Apple's printer port with "PR#1," he had the choice of using an MS-DOS terminal program or the MS-DOS COPY command to capture the data he "printed." Any text that appeared on his Apple II's text screen was captured by the MS-DOS computer, including his Applesoft BASIC program listings! (Don't get too excited—even though the PC's BASIC language is somewhat similar to Applesoft, these programs won't run on the MS-DOS computer without extensive conversion.)

To try this, run MS-DOS telecommunications software and set the parameters for 9600 baud, 7 data bits, 1 stop bit, and no parity. Other parameters may also be used; just make sure the parameters are set identically on both machines. Instruct the MS-DOS program to open its capture buffer before typing "PR#1" on the Apple II, then close the buffer and save it to disk when you're done.

A second method is slightly more sophisticated. At the IBM-compatible computer's DOS prompt, type "MODE COMx: 9600,n,7,1,n" (x should be replaced with the number of the serial port). Then type "COPY COMx FILENAME.EXT." Begin printing from the Apple. Once you're finished sending text, send a Control-Z (CHR$(26)) from the Apple II to make the MS-DOS machine close the file.

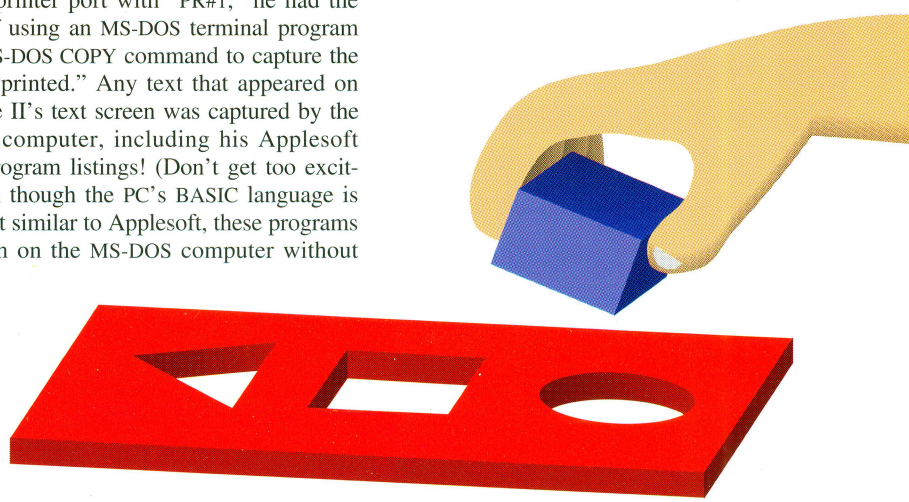
More sophisticated transfer is possible using communications software on both the Apple II and MS-DOS machines. This allows you to transfer files at higher speeds and to use error correcting protocols to ensure that no transmission errors occur.

Finally, it is possible to have Apple IIs and IBM compatible machine linked together on the same local area network. Any competent piece of networking software will allow for transfer of files.

MODEM TRANSFER

If you have access to an Apple II and to a MS-DOS computer, even if they are more than 50 feet apart, you can use a modem instead of a cable.

Set the modem on your Apple II to answer the phone when it rings. This might be as simple at typing "ATA" or "ATS0=0" while in terminal mode of your favorite telecommunications software. Consult the manual for your modem and software if you are in doubt. Then have a friend use the modem on an MS-DOS machine to call your number. Again, make sure your baud rates, parity, and stop bits match. Make sure both machines are set to "local echo" or "half duplex" so that you can type messages back and forth to each other



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To sign up for GEnie, set your modem to 8 data bits, 1 stop bit, no parity, half duplex (local echo off), and 2400 BPS or less. Then dial 1-800-638-8369 (1-800-387-8330 in Canada).

When GEnie answers, type **HHH** immediately. At the U#= prompt, enter **XTX99017,APPLE** and press Return. Then follow the simple on-screen instructions. Have your credit card or checking account number ready.

If you encounter difficulties in the signup procedure, or if you would like more information about GEnie, contact GEnie Client Services at **1-800-638-9636**, or write to P.O. Box 6403, Rockville, MD 20850 U.S.A.

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while you're connected. Your modem should pick up the phone when it rings, and the other modem will try to make a connection. Once a connection is made, you shouldn't have any trouble sending or receiving files using Zmodem or another transfer protocol.

If you don't know with an IBM, you could upload your files to a local BBS, or to the personal file area or electronic mailbox of an account on a service such as GEnie, CompuServe or America Online using one of the computers. Then download the files using the other computer.

TRANSFER VIA A MACINTOSH

Strangely enough, a Macintosh makes an excellent peripheral for transferring files from Apple II to IBM format!

If you want to transfer Apple II data to a MS-DOS computer, begin by making sure your files are on a 3.5" ProDOS disk. Take that disk to someone with a Mac. The Mac must be a model with a high-density (1.44 MB) 3.5" drive. Use the Apple File Exchange program (AFE), which comes on one of the Macintosh system disks, to copy the files from the ProDOS disk to the Mac's hard drive. You can then easily write to an MS-DOS disk using AFE. AFE can also be used to format ProDOS or MS-DOS disks.

Some Macintosh models come with a program called *PC Exchange* which allows easy transfer back and forth between a Macintosh and a DOS computer by fooling the Mac into thinking that the MS-DOS disk is really a Macintosh disk. This lets you stick an MS-DOS disk into the drive and copy files to and from MS-DOS disks right from the Finder. The Macintosh LC IIe Card comes with a program which performs the same feat with ProDOS disks.

A program which doesn't come with the Macintosh, but which can be useful if your Mac friend has it, is *MacLinkPlus/PC*. It contains over 400 format translation combinations. Like *Cross-Works,* this program translates files so that other programs can understand them. The program is designed to translate between Mac to MS-DOS file formats, but used in conjunction with AFE's translations, it may be helpful.

TRANSFER VIA CONVERSION SERVICE

Some conversion services and service bureaus handle Apple II disks. You may have a hard time finding one, though. Check your local Yellow Pages. If you find a service that does support the Apple II, be sure to get the word out for the benefit of others trying to accomplish the same thing!

AFTER THE TRANSFER

Once you have your files transferred, there still may be a few steps to take. If your files came from a BBS or other online service, you may have to unpack them.

Apple II users who want to unpack MS-DOS .ZIP files will like *Angel,* by Tony Marques of Terrace, British Columbia, Canada. *Angel* requires at least an enhanced Apple IIe (that is, with a 65C02 processor) and 128K. Apple IIGS users will also be able to use PMPUnzip, a shareware program from Parkhurst Micro Products (2491 San Ramon Valley Blvd., Suite 1-317, San Ramon, CA 94583, USA, phone 510-837-9098). Both Angel and PMPUnzip can handle PKZIP 2.04 archives.

MS-DOS users who want to unpack *ShrinkIt* archives will find a MS-DOS version of *ShrinkIt* available under the name NULIB. Beware of versions earlier than 3.24, as they had problems making ProDOS filenames MS-DOS compatible. (ProDOS permits 15-character filenames; MS-DOS limits you to 8 characters for the filename and 3 for the extension, as in FILENAME.EXT.)

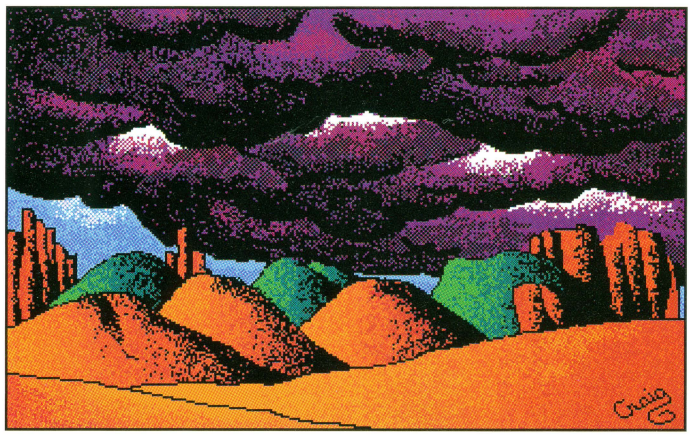
It is important to know that ProDOS and MS-DOS treat hard returns differently. ProDOS requires only a carriage return at the end of a line or paragraph, while MS-DOS requires a carriage return and a linefeed. If you are sending from ProDOS to MS-DOS, you will want to insert linefeeds before you send the file. If you are sending from MS-DOS to ProDOS, you will want to strip linefeeds after you send the file. On the Apple II side, linefeeds will show up in a text file as control-Js. In an AppleWorks word processing file, linefeeds will show up, as all control-characters will—as number signs (#).

Fortunately, there are many freeware and shareware utilities to strip and/or insert linefeeds—and the Mac AFE program and PMPunzip can handle this automatically. The file transfer protocol Zmodem also takes care of this transparently when transmitting text files. Apple II users can use Harold Portnoy's part freeware/part shareware program *Change-A-File,* Stowe Keller's shareware *LIST*, or Karl Bunker's freeware *LINEFEED.IR*; MS-DOS users can look to download ADDLF.EXE from CompuServe or CRLF.ARC from GEnie; both are free.

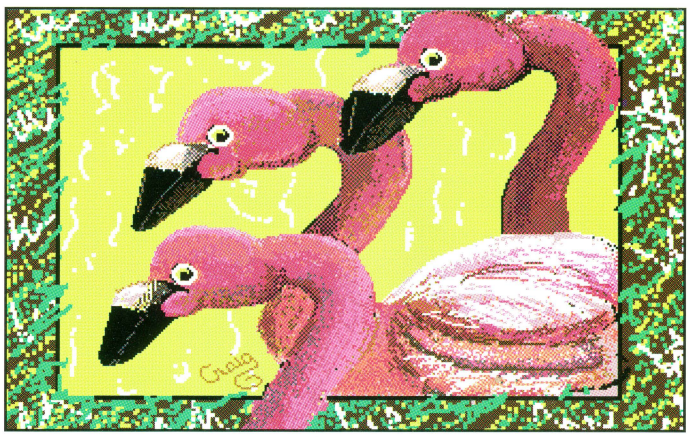
Apple II users transferring their files to MS-DOS may have some disks formatted under Apple's DOS 3.3 (not to be confused with MS-DOS 3.3, which is also referred to as DOS 3.3). You will find it quite an easy matter to transfer your DOS 3.3 data to ProDOS using the System 6 DOS 3.3 FST, Apple System Utilities, Copy II Plus, or the older CONVERT utility. The shareware program *Chameleon* will do all this, plus transfer files stored on Apple CP/M and Pascal disks, if you have any of those hanging around.

CONCLUSION

With the introduction of System 6.0.1, the Apple IIGS can read disks in MS-DOS format, in Macintosh HFS format, and of course in Apple II DOS 3.3, Pascal, ProDOS and GS/OS format. There are a wealth of other options, too, bringing us one step closer to cross-platform compatibility and to being one big happy computer-using global family. ■



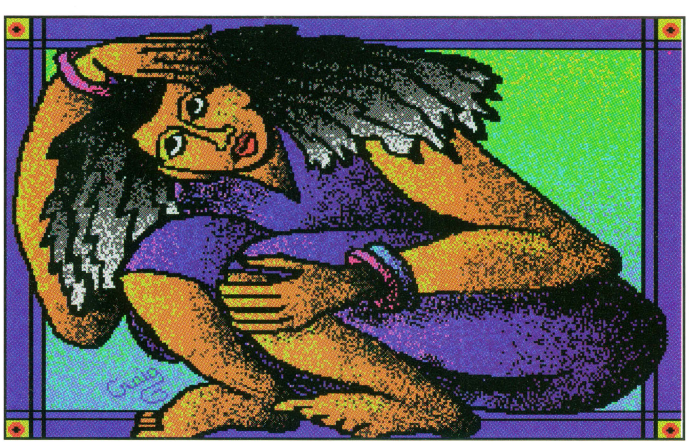
Distant Storm



Flamingoes



Flower



Gauguin

ART Gallery

GRAPHICS MODES AND DITHERING

by Carolyn Craig

Editor's Note: This month, we feature the art of Carolyn Craig, a computer art teacher in Shelbyville, Indiana. Her art was created with *816 Paint* and *Platinum Paint.* Craig also included some notes on the technique of dithering and how it relates to the various graphics modes, which may be valuable to readers attempting to give their art more lifelike shading.

Dithering is the placement of two solid colors in adjacent dots (pixels) to fool the eye and thus create a new color which is a mixture of the two solid colors. Not all paint programs have this ability, but those that do—such as Baudville's *816 Paint*—permit a greater range of colors on the computer.

Dithering is a concept that applies to all of the Apple's graphics modes: Standard Apple II high-resolution graphics support extremely coarse dithering. The screen contains 280 columns of dots horizontally and 192 lines vertically. There are two color palettes available: one consists of black, white, green, and violet; the other consists of black, white, orange, and blue. Due to the limitations of the high-resolution graphics mode, colors from one palette cannot be placed horizontally adjacent to colors from the other palette. However, the black and white colors look the same in both palettes and can be used (with some trickery and careful placement) as a transition between one palette and the other. Another common technique when areas of color from different palettes must meet is to place colors from one palette on even screen lines and colors from the other palette on odd screen lines.

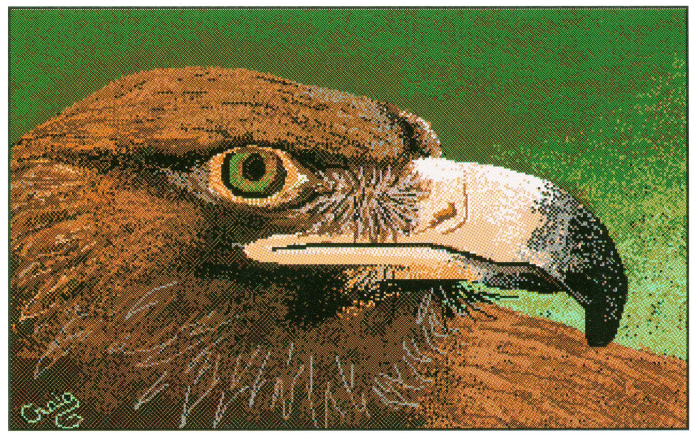
Double-high-resolution graphics (available on Apple IIc, IIGS, and IIe with 128K memory) have double the horizontal resolution of standard high-res screens: 560 x 192. The color palette has sixteen solid colors:

ART Gallery

black, red, dark blue, violet, dark green, grey 1, medium blue, light blue, brown, orange, grey 2, pink, light green, yellow, aquamarine, and white. Unlike standard high-res, you can use any color next to any other color, though some jagged edges and bleeding may be apparent with some color combinations. By dithering these sixteen colors in various ways, it is possible to paint with over 4,000 "colors."

320 mode (available on the Apple IIGS) is the best vehicle for the artist, as it supports sixteen different user-defined colors from a range of 4,096. (That is, there are 4,096 colors possible, but you can only use sixteen at a time. You get to choose which sixteen you want to use.) Most paint programs allow you to modify these sixteen colors individually by adding or subtracting red, green, and blue (the three primary colors of light) as well as by specifying the hue, saturation, and intensity of the color. 816 Paint allows each painting to have eight different palettes, which can be "cycled" to produce a form of animation. The resolution is 320 x 200—only a little finer than standard high resolution, but actually much better since you can choose your own colors.

In 640 mode (also on the IIGS), the screen is 640 x 200. The computer maintains two separate four-color palettes for even and odd numbered pixels on a line, and can dither pixels in these even/odd palettes to create quite fine-looking dithered colors. However, it is more difficult to adjust the colors because of the dithering: changing one primary color in the palette will affect the other colors which are created from this color. 640 mode was really designed for Desktop programs which must be able to display clear, readable text, and is not well suited to the artist. ■



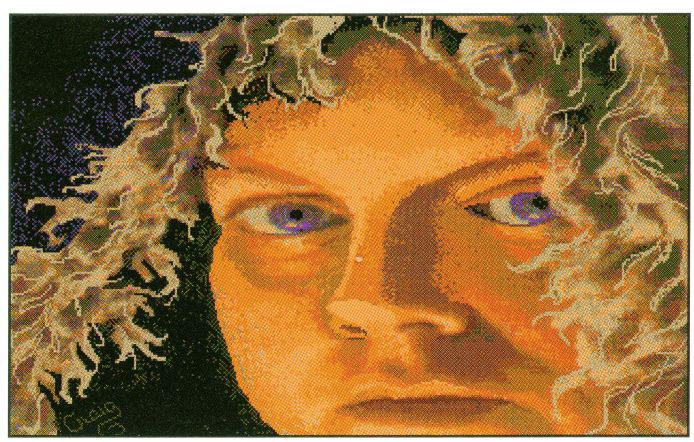
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HEAD OF THE CLASS

(Continued from page 17)

Some of the activities in the thematic unit contract call for producing illustrated booklets on surfing or water skiing. These projects are naturals for hypermedia programs like Roger Wagner's *HyperStudio* and Apple's *HyperCard* IIGS, or even 8-bit programs like TechWare's *Tutor-Tech,* Scholastic's *Slide Shop, Hyperscreen,* or *Super Story Tree.* If the student prefers to make a traditional booklet on paper, most hypermedia programs will print out individual screens. Broderbund's series of Print Shop programs can also turn out excellent title and content pages and The Learning Company's *Children's Writing and Publishing Center* can help the student design entire illustrated booklets (it will also import *Print Shop* graphics).

Apple II Hypermedia programs can be used—instead of boring old poster paper—to make a board game with an ocean theme. By introducing the random selection of screen choices from *Super Story Tree,* for example, the chance element of a spinner or dice can be duplicated. If a student is really up to the challenge, he or she can write a game about oceans entirely in BASIC or LOGO for extra credit.

Projects that involve creating artwork, such as making a map of the Pacific Ocean floor, drawing a Venn diagram comparing two bodies of water, or writing an illustrated poem about oceans, can effectively utilize software such as Beagle Bros' *Platinum Paint,* Broderbund's *Dazzle Draw* or The *Print Shop GS* Companion's Quick Page option.

There is even an activity which requires writing and tape-recording a song about a seahorse. Musically-inclined students may want to use a program like *synthLAB, The Music Studio* or *Music Construction Set* to create accompaniment. Any Apple II can run MECC's Showtime program, which has a built-in music program that most students find fun and easy to use.

If your school has it, *The Voyage of the Mimi* is a series of video tapes and corresponding software for the Apple II that will coordinate beautifully with an Oceans unit.

With a little bit of imagination, you can take whatever software is in your school library and integrate it into any thematic unit on any subject. The remarkable thing about Apple II software is that is adaptable. There is no reason that a music program can't be used to teach Social Studies or a paint program to teach Math. By exploring the myriad uses of your software, you'll become a more well-rounded teacher—and, more importantly, your students will reap the benefits.

Karen Evry is a fifth grade teacher in Stafford County, Virginia who has used Apple II software for years. Ron Evry develops educational software and is the Apple II disk librarian for Washington Apple PI. For those who wish a hard copy of the thematic unit "Oceans", please send a long Self-Addressed Stamped envelope with TWO stamps on it to the authors at 2880 Cedar Crest Ct., Woodbridge VA 22192 ■



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The Q Drive Care and Feeding Video is perfect for the new hard drive owner who wants to get started quickly.

If you're not sold on a Q Drive yet, but want to know more, you can order the Care and Feeding Video separately and watch it in the comfort of your own home.

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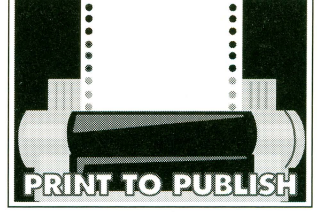
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Newsletter Design Basics

by Carl Sperber

It seems that every organization in the world has a newsletter these days. Political and charitable organizations publish them. Computer user groups publish them. I've even seen one newsletter published by an individual about himself—he sends it to all his friends, thereby proving that there's no subject too small for a newsletter. Whether you're selling something or just on an ego trip, the fact is, newsletters are effective communication tools, and with desktop publishing, anyone can produce one. The problem most people have is making one that is attractive and readable.

In this article we'll be discussing the generalities of design. In today's world, if you use a computer, it seems like you're called upon to be an expert on everything. But, as we've seen all too frequently, buying a desktop publishing program doesn't make you a designer any more than buying a Steinway makes you a concert pianist. While we can't teach you everything you need to know in one or two articles, we can give you some tips which will shorten the learning curve and can begin to make a dramatic difference immediately.

Most of my own experience is with the Macintosh, which is the machine of choice for professional designers—but people have been putting out newsletters since before computers ever existed. The visual language of page design is well-known and universal. It does not depend on technology. If you know how to design a page, you can whip up a good newsletter with a typewriter and a box of crayons. Any computer is a major step up from the old way of doing things, and for personal or semi-professional use, the Apple II more than holds its own.

DESIGN

When designing your newsletter page, think about how you want to divide your page between text, graphics, and white space. Striking a balance between these three elements, as well as using your pages economically, is the goal. I find starting with a sketch of a page before I lay it out on the computer is a big help.

Choosing the number of columns for your newsletter is also very important. For an 8.5x11 page, 3 columns is typical, but it's not a rule. Many newsletters use 1, 2, or 4 columns, and so can you. Mixing up the number of columns between pages or articles in your newsletter can be an effective design element when done well. It makes your page more interesting looking, and makes the division between articles plain to the reader (see figure 1).

Another idea you can use is to think in terms of a 5- or 7-column layout. For example, divide your page into five "guide" columns. Make each of your text columns cover two guide columns. This will give you two text columns, with an extra guide column left over for captions, call-outs, and so forth. Use the extra column to "overlap" graphics with the text area (see figure 2).

Put only vital information into your newsletter—don't clutter it with extraneous information. For instance, if you are designing a 4-page newsletter, you don't need a table of contents. Most readers can scan 4 pages for their contents faster than what it would take them to read a table of contents. If you're not sure whether something belongs, cut it.

FONTS

As we discussed in the last issue, you should choose your fonts carefully. Beginners would do well to limit themselves to two or three: one for body text, one for headlines, and possibly one for special purposes (for example, Courier or another mono-spaced font for "screen shots" or simulated computer printouts).

We'll give special dispensation for one use of an extra font—your newsletter's banner. It's important to have your newsletter's name plainly visible where everyone can see it, and choosing the right font here can make a tremendous difference in your newsletter's personality. If you are particularly clever, you might be able to use the font elsewhere in the newsletter (for example, for page numbers), providing a repeating motif which will tie the whole publication together.

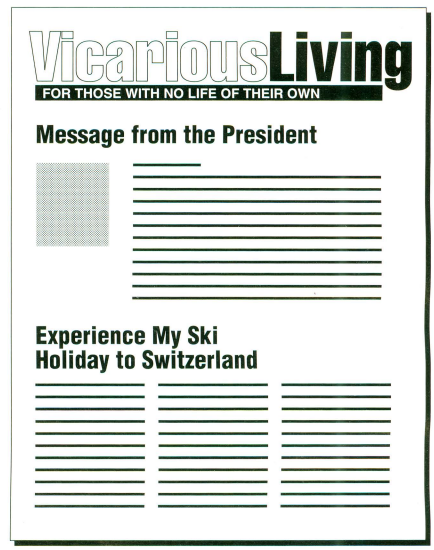


FIGURE 1

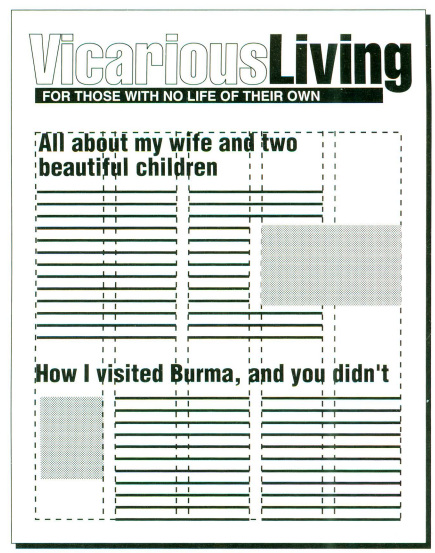


FIGURE 2



FIGURE 3

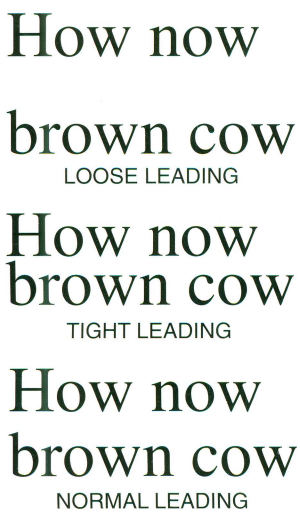


FIGURE 4

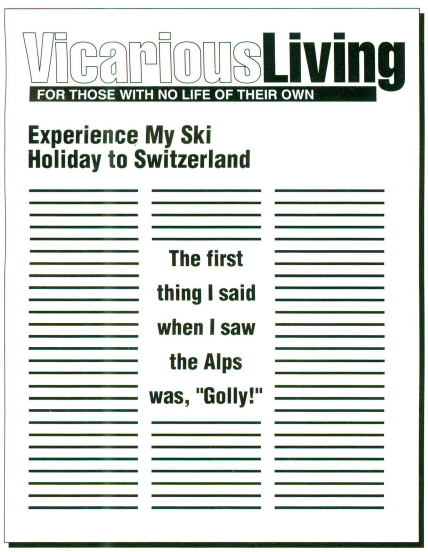


FIGURE 5

TRITE is a new software database that puts worn out cliches just a keystroke away. With TRITE, you can bore the socks off your friends with tired old adages like:

- **Nothing ventured nothing gained**
- **Look before you leap.**
- **A stitch in time saves nine.**
- **A bird in the hand is worth two in the bush.**

FIGURE 6

Excessively fancy fonts should generally be avoided, even for banners, but neither should you use fonts which are too generic. Contrast is a good tool. For example, if your newsletter is entitled "VicariousLiving," you might design a logo like the one in figure 3. You can even get away with two fonts in your banner if you follow the contrast rule (that is, make one bold and one light). The most important rule is to make it big and readable. Unless you have really good clip art (or are an artist in your own right) you're usually better off just working with text and avoiding cutesy graphics in the banner.

Often you'll add a tag line under the newsletter's title to clarify who the newsletter is for or what it covers. Keep it as concise as possible.

LEADING

Leading (rhymes with "bedding") is the amount of space between lines of text. The term comes from the early days of the printing press, when type was set using molds and molten lead. Leading that is too tight (too little space between lines) will make your newsletter crowded and hard to read. Leading that is too loose (too much space between lines) can be a waste of space—but it can also be an effective design element when used properly (see figure 4).

Leading is measured in points, like type. Standard leading is 20% greater than the point size of your type. So if you are using 10-point type, 12-point leading is standard. Most Apple II desktop publishing programs do this automatically; a few may allow you to change the leading if you decide you want an "airier" feel.

Changing the leading for sidebars and callouts is one of the easiest ways to differentiate the various types of information in your newsletter. For an interesting effect in sidebars, try extremely loose leading with an extremely bold font—possibly the same font you use in your headlines or a lighter version of the font (see figure 5).

ALIGNMENT

Text alignment comes in four different flavors: flush left, flush right, centered, and justified. To keep the look of your newsletter consistent, you should use the same alignment(s) throughout. For instance, you may choose to use justified alignment for your body text, and flush left for headlines. But, whatever your choice, use them consistently throughout your newsletter.

You also need to decide what to do about paragraph breaks. You can indicate a new paragraph by indenting the first line of the paragraph a quarter inch or so, or by placing a blank line between paragraphs. Either way is fine, but you must choose one and stick with it throughout your newsletter. The indented paragraph style is more suited to wide columns than to narrow ones; the blank-line style can help air up a document with tight leading.

Hanging paragraphs will help offset important points or lists in your text (see figure 6). For example, a list of product features hidden in a standard paragraph isn't eye-catching. But, listing features using hanging paragraphs, and using a distinctive leader symbol such as a bullet or star, gives your reader a visual clue that there is something you want to stand out from the rest of the text. Hanging paragraphs look best when you're using the blank-line style of paragraphs.

WHITE SPACE

I see many newsletters that were seemingly designed by agoraphobics—people who have an extreme and irrational fear of open spaces. It's as if these designers are compelled to cram text onto every square inch of the document. Remember, white space is our friend. Effective use of white space is inviting to the reader. It draws them to articles or pictures, makes the divisions between articles clear, and even gives your readers a place to hold your newsletter while they read it.

Use at least a half-inch margin around the perimeter of your page. This gives your readers' eyes a clearly-defined border. Headers and footers can fall outside the margins, but the body of your newsletter should be locked to the margins and columns. The space between your columns should be consistent throughout the newsletter. Make sure it is adequate to make a clear division (a quarter-inch is usually enough).

Also use adequate white space to separate articles. Insufficient white space will make it hard for your readers to tell one article from another. Too much is inefficient. A quarter to a half-inch—depending on the size and leading of your headline—is about right.

GRAPHICS

Graphics and illustrations are essential for an interesting and effective newsletter. Pictures of people, illustrations, graphs, and maps. are magnets that attract your readers' eyes. But using them effectively is as important as having them in the first place. Here are a few tips.

First, don't put in a picture or illustration unless it provides information. It should not merely repeat information in the body text, but supplement it or enhance it in some way. In the same vein, make sure that each picture provides only the information it needs to provide and is not cluttered with extraneous information. A map is a good example of this: simplify it to only the major streets that lead to the destination. Remember, a picture is worth a thousand words—make sure your pictures are not telling the world that you don't know what you're doing.

Crop pictures to the center of interest. For

example, when using a picture of a person, cut off everything but the person, leaving a comfortable border but eliminating most of the background (see figure 7). Proper cropping can often turn boring pictures into exciting ones, and it almost always improves even the best pictures. To make a person seem larger than life, crop them very tightly and let the picture "bleed"—push it up against the very edge of the page, giving the impression that the page simply is not large enough to hold them. Finally, remember that newsletters are about people communicating with other people, and pictures of people are almost always more interesting than pictures of objects.

Don't let graphics interrupt the natural flow of articles. If you have a three-column layout and are using a picture that is as wide as two columns, the picture should be contained within two columns, not draped across all three (where it will reduce the width of the leftmost and rightmost columns to half their normal width). If the picture doesn't fit across an even number of columns, reduce or enlarge it until it does. (When you have a choice, reducing is usually better.)

Interesting designs can be achieved by using an extremely simple "icon" illustration which repeats in some way (or which is "ghosted"—drawn extremely lightly—behind the main body text). But don't just display a row of fish, make the last fish doing something—make it bigger, or darker, or both, to give the impression of a progression. "Dingbat" fonts—fonts consisting of decorative characters, such as Mobile, Zapf Dingbats, and BillsDingbats—are simple ways to add some graphic excitement to a page.

Callouts (short quotations from the body of the article) are text, but they work like graphics. They usually work best at a width of one column. Try using your headline font in the callout to unify the page design.

OTHER TIPS

Greeking—Greeking means replacing the actual text of a document with nonsense (the traditional greeking is a string of pseudo-Latin which begins Lorem ipsum dolor). Try it—by looking at the design of the page independently of its contents, you can experiment with layouts more freely. A good-looking layout will still look good no matter what text you put into it, but a layout designed around a specific text or graphic element may not always look good when you change the article. Since you're publishing a newsletter, you want the look to be consistent from issue to issue, which means coming up with a good generic layout which will work in a wide variety of circumstances. Greeking will help.

Laser vs. Dot Matrix —If you're lucky enough to be designing for a laser printer, you can follow the guidelines above pretty much as I've stated them. If your final output will be to a dot matrix printer, your letters need to be just a little larger, and you need to be more "obvious" with pictures and other graphic elements. Line art prints better on dot matrix printers than graphics with subtle grays and gradients. Digitized and scanned pictures (like photographs) are usually not advisable. Try to get your final output on a laser printer if at all possible. You should at least be able to print the file to disk in PostScript form, put it on a Macintosh disk with System 6, and take it to the local Kinko's where it can be downloaded and printed on a laser printer for a reasonable cost.

Balancing your layout—We've already mentioned contrast as an important element of graphic design. By contrast, we mean putting bold fonts next to light ones, or any other such juxtaposition of extremes. Another important layout consideration which goes hand in hand with contrast is balance. When you use extremely heavy headlines, use lighter-than-usual body text to counterbalance it. But this goes further than type weight—it also applies to other aspects of page design. One of the most common tricks for creating a "dynamic" layout is to intentionally throw the entire page off-balance in some way, then introduce some other element, pushed off in the other direction, which "tips" the page back into balance. The trick we mentioned earlier for creating interesting page layouts on top of 5- or 7-column "guide pages" works with just this assumption. By leaving one of the guide columns blank of text, we push the entire page to one side. Then we can introduce pictures, call-outs, and sidebars in this area which have enough weight to balance the page. A photograph might cut across two of the text columns and the unused guide column in a 7-column layout (see Figure 8).

Work in Pairs—Don't isolate your pages from each other. Page 2 and Page 3, for example, will be seen next to each other by the reader of your publication. So design them in tandem. Make sure that the layout is balanced across both pages and that the pages don't "clash." If your publication is thick enough to need some kind of binding, be sure to leave a "gutter" of about a quarter inch on the inside edge of each page for the glue. (The inside edge is the right edge for even-numbered pages, and the left edge for odd-numbered pages.)

Copy Successful Designs—No, we don't suggest you lay out your newsletter like Time magazine. But you might want to start off trying to duplicate their design as a learning experience (if nothing else, it will make you much more familiar with your desktop publishing program). Then modify a few things, one at a time, and see how the visual impact of the page changes. Fonts are a good place to start, but you should also experiment with the number of columns, placement of graphics, leading, and other factors. Sometimes bad designs are as just as good as a starting point—anything you do is likely to make it better, which gives you the freedom to explore your options without fear of "ruining" the design. Incorporate the knowledge you've learned in this way into your own designs.



FIGURE 7

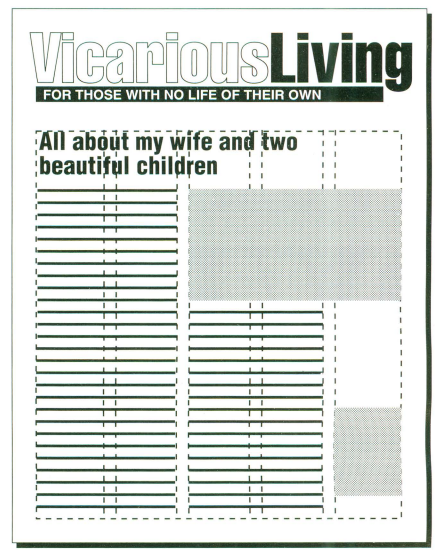


FIGURE 8

Read—One very good newsletter for beginners and experts alike is Before & After, a bimonthly publication designed and published by John McWade (the founder of PageLab, the first desktop publishing studio). The newsletter itself is an education in the fundamentals of layout, and the frequent newsletter makeovers alone are worth the price of admission. While B&A is very Macintosh-oriented (and more specifically focuses on Aldus software products), you'll learn lots of stuff that will apply to any computer and any software. For more information B&A, write to 1830 Sierra Gardens Dr., Suite 30, Roseville, CA 95661.

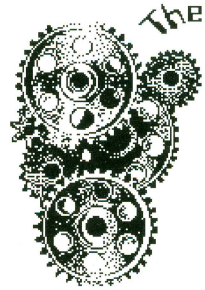
GO TO IT!

Even though I've seen some truly atrocious newsletters over the years, I'd much rather see bad newsletters than none at all. Computers bring the power of mass communication to your desktop. By learning to harness it more effectively, you can wield the power of the press like a pro. So get out there and publish! ■

AN INTERVIEW WITH MIKE WESTERFIELD

The Byte Works Inc.

1010 1101 0110



by Tara Dillinger

Mike Westerfield is the President of The Byte Works, Inc., a leading software company specializing in programming tools for Apple II computers.

II ALIVE: How did you get started in making programming tools?

WESTERFIELD: My first assignment in 1977, right out of the Air Force Academy, was to a squadron that did real-time satellite communications work. I was a physicist, but all of us had to write programs. The Air Force taught me IBM 360 mainframe assembly language, and I got the bug.

In 1979, I sold my car to buy my first computer: an Apple II. I wanted to write a chess program, but decided to start with something simpler—an Othello program. Unfortunately, none of the assemblers then available for the Apple would handle anything as big as a 2000-line program, which is how big that project was shaping up to be, so my assembly instructor talked me into writing my assembler. That was *ORCA/M,* which was published in 1982 by Hayden Software. It was patterned after the IBM 360 assembler because it was the only assembler I knew at the time. I never did finish that chess program, but I'm still young!

II ALIVE: Why did you start your own company?

WESTERFIELD: Basically because Hayden was struggling. Eventually they went out of business. I couldn't find any deals with other companies that gave me the freedom I wanted, so I started my own company. The Byte Works became a *real* company when I landed the contract with Apple to do APW for the Apple IIGS. That's when I decided to get out of the Air Force.

II ALIVE: What's APW?

WESTERFIELD: APW is Apple Programmer's Workshop—Apple's standard programming environment for the Apple IIGS. It's still the only native Apple IIGS development system they ever shipped. According to Apple, the 7th Apple IIGS ever built—and the first one to leave Apple—came to us to do APW. Actually, at first, it was called CPW, since the IIGS's code name was "Cortland."

II ALIVE: Do you still have that IIGS?

WESTERFIELD: No. They made us give that one back when they did the first motherboard revision. I do still have some of the other preproduction computers, but they're of a slightly more recent vintage.

II ALIVE: So what function does The Byte Works fill now?

WESTERFIELD: At this point, we're the Apple II development software company. There really isn't any other company still making serious tools. We just released a new 3D version of *Logo* and an Apple IIGS version of *HyperLogo.* We'll continue to do development tools for users at various levels of expertise, along with instructional courses and the occasional utility or productivity program.

II ALIVE: Tell us a little about your products.

WESTERFIELD: Our flagship products are the ORCA languages—*ORCA/M*, our macro assembler; *ORCA/C*; and *ORCA/Pascal.* These languages all work together, so you can write pro-

grams partly in one language and partly in another. Usually, people use that capability to write a program in Pascal or C, then rewrite a few time-critical parts in assembly language. The other big advantage of this approach is that you can learn a single development environment, then use several languages from it

We also have a series of courses that will teach you to write your own programs—*Learn to Program Pascal, Learn to Program C,* and *Toolbox Programming in Pascal and C.* We've introduced *ORCA Integer BASIC,* which is a sample compiler with complete source code, and we're about to release *Modula-2.* Of course, we've also done a number of support products, including *ORCA/Disassembler.* Finally, we've started doing some tools for other kinds of programming, like *3D Logo,* which displays real 3D on a standard Apple IIGS (using special glasses.)

As for who would use our products, basically anyone who wants to write a program or learn more about the way their computer works.

II ALIVE: By the way, is it true that ORCA/M came from MACRO spelled backward?

WESTERFIELD: Yup. David Eyes, the original product manager an Hayden, came up with the name. I liked it a lot, so we kept it and extended it to our other products. The killer whale is, well, a killer!

II ALIVE: How easy is it to learn a programming language?

WESTERFIELD: Most people can learn a computer language very well in 3-4 months, spending 5 hours or so a week at it. Obviously, some people pick it up faster than others. *Learning IIGS Toolbox Programming,* which is somewhat separate from actually learning a language, is about as hard as the language itself. Of course, you don't have to choose the most difficult language, and you don't even have to know the language all that well to do fun and useful things. With *3D Logo,* you can create an animated 3D "movie" the first weekend you have the program. With Pascal or C, it may be a few weeks before you create something you want to show someone else.

II ALIVE: That's really not very long at all.

WESTERFIELD: Not for what you can do with the knowledge. One interesting quirk, though, is that people seem to have the most trouble with the *second* computer language they learn, not the first! Go figure. I think it just takes a while to get used to doing something two different ways.

II ALIVE: Tell us a little about your newest product, *3D Logo.*

WESTERFIELD: *3D Logo* is really a hoot. It's a full implementation of a traditional Logo—you know, the language with the turtle that draws lines by moving around the screen—adapted to the Apple IIGS environment. It's very compatible with other *Logos,* like *Apple Logo* and *Teripin Logo,* but we added a few great features.

Let me explain turtle graphics a little first. It's a simple but effective graphics language. The original turtle was a robot built at MIT. You could tell the robot to move forward and backward, turn left and right, and raise and lower the pen so the turtle could move from one place to another with or without drawing a line. The turtle was used with kids to teach them programming. Turtle graphics is the same idea, with more commands, implemented on a computer. The robot has been replaced with a small triangle that moves around on the screen, but the concepts are the same. It's been a part of *Logo* almost since the beginning, which is why *Logo* is so successful with kids.

In *3D Logo,* the turtle can fly! It can ROTATE-OUT, ROLLLEFT, and so forth, and draw "lines" in 3 dimensions. That works on a normal screen, and you get true perspective. It also works with 3D glasses, the ones with one red lens and one blue lens. Red lines don't show up through the red lens and blue lines don't show up through the blue lens. By drawing red and blue versions of each shape on the screen, each eye see a different view, and you get a true 3D effect! It's realistic enough that some of my younger testers actually tried to grab the objects! *3D Logo* can also make movies, and can even talk for itself.

II ALIVE: What else can *Logo* do?

WESTERFIELD: Well, *Logo* is also a pretty darn good artificial intelligence language, because it's based on LISP, which is probably *the* most popular artificial intelligence language. You can think of Logo as BASIC for artificial intelligence programming.

Artificial intelligence is when the computer appears to "think" in a human-like fashion. The best-known example of AI is probably Eliza, the original computer shrink. Other applications include recognizing 3D objects through a video camera, sophisticated database search mechanisms, games which pick the best move from a number of choices (like a chess program).

List-processing languages like Logo are pretty good for AI. They are also simple to use and learn because they're not strongly typed—you don't have to worry about whether a variable is an integer or a real or a string.

II ALIVE: And what about *HyperLogo?*

WESTERFIELD: *HyperLogo* is a version of *Logo* that sits inside *HyperStudio.* It includes everything that's in *3D Logo,* including the 3D features, plus commands to control *HyperStudio.* For the IIGS version of *HyperStudio, HyperLogo* replaces *SimpleScript.* The Mac version of *HyperStudio* comes with *HyperLogo* built in.

For example, you could implement Eliza as a *HyperStudio* card, and use variations on several different cards. Or you could use *HyperLogo* to generate animated 3D movies for a chemistry stack. With some work, you could even create a molecule construction set with *HyperStudio* and *HyperLogo!*

II ALIVE: Can the same code be used on both the IIGS and the Mac?

WESTERFIELD: To some extent, yes. There are differences between the IIGS and Mac versions of *HyperStudio,* and *HyperLogo* can't hide those. The *Logo* language itself, however, is the same language in all four of our *Logo* versions. You can develop subroutines in any of the *Logos* and use them in any other. You can even create a program in *3D Logo* on a GS, then run the same program on a Mac with no changes! It's even possible to put a *single* program on a network and run it from both computers.

II ALIVE: How did you get hooked up with Roger Wagner?

WESTERFIELD: Well, Roger publishes the main competitor for *ORCA/M—Merlin. Merlin* really is the king of the 8-bit assemblers, but we got to the Apple IIGS first because of the APW contract. When the Apple IIGS version of Merlin finally arrived, we plotted our ad campaign... Remember the *Jaws* movie poster, with the shark coming up under the bikini-clad swimmer? Well, replace the shark with a killer whale and the swimmer with a wizard and you get the general idea. The caption was going to be, "Welcome to the Apple IIGS, Merlin. We've been waiting for you!"

II ALIVE: I don't remember seeing that!

WESTERFIELD: Well, 4 color ads are expensive, and I didn't know Roger that well then, so it remained just an idea. But Roger is a pretty fun guy. When he was looking for a scripting language for the Mac version of *HyperStudio,* he came to me, because he knew me and he knew that I had experience writing languages. It always pays to keep in touch with your competitors—you never know when they'll turn into allies!

II ALIVE: Is *Logo* compiled or interpreted?

WESTERFIELD: Our *Logo,* like most, is interpreted. That means that *Logo* reads your program, line by line, doing what the program says to do. A compiled language converts all your instructions to machine language, which is the language your computer really speaks at the lowest level, before running line one of the program. The advantage of interpreted languages is that they let you play with ideas quickly, since you don't have to wait for a compiler to reconvert the program each time you make a small change.

II ALIVE: Could you say that complied is like learning to speak French and interpreted is like having a translator with you?

WESTERFIELD: In a real sense, yes. The key technical point is that the compiler converts the whole program to machine language at once, but the interpreter never really does.

II ALIVE: What kind of person makes a good programmer?

(Continued on page 64)

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Total Multimedia Control With HyperStudio

by Vern Mastel

Want to perform a series of video actions involving single frames and sequences run from a single HyperStudio button? Sequences that allow—or require—user input? How about combined CD-ROM and laser disc control? Since I use a Pioneer Laser Disc player for presentation work, I have often been frustrated by the limitations of the "Play a Video" (PAV) button action in HyperStudio. It lets you specify sequences and frames, but only on a one-at-a-time basis. It does not allow program variables to be used to control disc functions—all values are hard-coded into the PAV button action.

A better way to control a laser disc player is to directly script all the needed control functions without using the HyperStudio "Play a Video" button action. Controlling the player yourself gives you more control—and more creative choices—than you ever thought possible.

CABLE TV?

You'll need to connect the disc player to the IIgs's modem port. Cables for doing this are available from most dealers which sell computer-controlled laser disc players (tell them you have a Macintosh if they don't know what you're looking for) and, of course, from Redmond Cable, Quality Computers, and so on. The modem port should be set to 4800 baud in the IIGS Control Panel, with all other settings at their defaults. (The laser disc player defaults to 4800 baud, although it can be set to 1200 with DIP switches on the player. I suggest leaving things at their factory settings, since it works fine that way.)

If you're technically savvy and want to make your own cable, Table 1 shows the pins you need to connect.

TABLE 1

DB15	Mini-DIN 8
1	8
2	5
3	3
4	1

The Commands

There are forty or fifty commands that the Pioneer players understand. (Other brands of players use different commands.) Newer Pioneer units such as the CLD-V2400 play not only video laser discs but also audio CDs. I will focus on the commands for video control, which are shown in Table 2.

TABLE 2

Command Name	Code	Parameter	Disc Type
Open	OP	None	Both
Start	ST	None	Both
Play	PL	End Value	Both
Still	ST	None	CAV
Pause	PA	None	CAV
Scan Reverse	NR	None	CAV
Scan Forward	NF	None	CAV
Step Forward	SF	None	CAV
Step Reverse	SR	None	CAV
Display	DS	On/Off	Both
Video Output	VD	On/Off	Both
Audio Output	AD	L/R/Stereo/Off	Both
Reverse Double Speed	MR	Speed	CAV
Reverse Quadruple Speed	MR	Speed	CAV
Forward Double Speed	MF	Speed	CAV
Forward Quadruple Speed	MF	Speed	CAV
Chapter	CH	Value	Both
Frame	FR	Value	CAV
Time	TM	Value	CLV
Stop Marker	SM	Value	CAV
Clear	CL	None	Both

("Both" means that the command supports both CLV and CAV discs.)

DISC BASICS

Laser discs come in two types: CAV and CLV. CAV stands for Constant Angular Velocity, which means that the discs spin at the same speed regardless of whether the player is reading the innermost or the outermost tracks on the disc. On CAV discs, each track contains one frame of video (there are 30 frames per second of video). Because of the one-to-one correspondence between the video frames and the tracks, each frame of video can be accessed individually. You can "freeze" any frame you want on the computer monitor, because the laser beam just keeps reading the same frame over and over. Most computer-accessible laser discs are CAV.

CLV stands for Constant Linear Velocity. This means that the surface of the disc always moves past the laser at the same speed. Since the outermost edge of the disc is longer than the innermost track, the player slows down the disc's rotation as the laser tracks outward from the center of the disc. This allows more video to be stored on the outer tracks of the disc; however,

most players don't allow you to freeze CLV discs because a single frame of video may be split across more than one track. (Some players have a "frame buffer" which can freeze any disc, but mine does not.) Most movies come in CLV format.

The types of control you have over these two types of discs are summarized in Table 3.

TABLE 3

Command	CAV	CLV
Multispeed Control (MR, MF)	Yes	No
Still Control (ST)	Yes	No
Step Control (SF, SR)	Yes	No
Time Control (TM)	No	Yes

ADDRESSING THE PLAYER

To send commands directly to the player from a button, you use the PORT NBA (New Button Action). Create a new button and assign the PORT NBA to it. In the dialog which appears, enter three lines of text, pressing the Return key after each:

"Port 1" or "Port 2"

"Reply Yes" or "Reply No"

The desired command string

"Port 2" is the Apple IIGS modem port, which is what I use. (You can also use the printer port with "Port 1.") "Reply Yes" forces HyperStudio to wait until the player returns a completion status, indicating that it has successfully completed the requested activity. The command string should be the commands you want to send to the player.

The laser disc responds to simple two-character commands in ASCII (text) format. Some commands have parameters or operating values; others do not. All parameters are in expressed in decimal format. A command line sent to the player can be up to twenty characters long, and must be terminated by a Return.

For example, the command to stop the player and eject the disc is OP. To create a button which ejects the disc, then, you would enter the following into the PORT NBA dialog:

Port 2

Reply Yes

OP

The PL (Play) command is a little tricky. Play will play the disc from a starting point—usually wherever the player happens to be at the instant the Play command is received, although you can also use the Search command before Play to specify a starting point—to the specified end point. However, the player does not send a completion status back to the computer until the specified frame is reached. HyperStudio will therefore wait for the entire video segment to finish playing before it allows further user actions. You could use "Reply No" in the PORT NBA; however, this can result in erratic behavior in some cases, since *HyperStudio* doesn't wait to find out whether the command has been completed successfully before continuing. A better solution is to send a Clear command immediately after the Play command (place "PL CL" on the third line), which allows the player to accept more commands while the disc is playing and sends a result code back to *HyperStudio* immediately.

BUILDING A SCRIPT

So far, using the PORT NBA, we haven't really been able to do a whole lot that's not already available with the "Play a Video" action. However, using the SimpleScript language built into *HyperStudio,* you can control your laser discs in all sorts of arcane ways.

First, you must have the PORT NBA in your stack. Create an invisible "do nothing" button somewhere on one of the cards in your stack—it doesn't matter which one. Leave the NBA dialog empty. We'll fill it in from the script. Once you have done this, can use the PORT NBA in SimpleScript scripts in other buttons on other cards. If you don't have the dummy button somewhere, your scripts will not work.

Here's a simple SimpleScript script (got that?) which performs a slide show, using still images from a laser disc and background music from an audio CD in a CD-ROM drive. You can't do this all with one button with the "Play a Video" button action—you'd need several "timed" buttons and a great deal of forethought. But it's very easy if you control the player directly.

```
REM Define port number and Reply status for PORT NBA
PORTSTR = "Port 2" & CR & "Reply Yes" & CR

REM Cue the laser disc player to the start of Chapter 6
NBA PORT PORTSTR & "CH 6 SE" & CR

REM Play track 2 of music disc
NBA MINISCRIPT "CDPLAY +T2"

REM Step forward one frame every 3 seconds, ten frames total
FOR X=1 to 10
NBA PORT PORTSTR & "SF" & CR
PAUSE 3 SECONDS
NEXT

REM Cue the disc player to the start of Chapter 1
NBA PORT PORTSTR & "CH 1 SE" & CR
PAUSE 2 SECONDS

REM turn off the video output of the disc player
NBA PORT PORTSTR & "0 VD" & CR

REM stop the audio CD
NBA MINISCRIPT "CDPLAY -T"
END
```

PORTSTR is a variable defined at the beginning of the script to hold the desired port number, a carriage return, the reply status (Yes), and another carriage return. When we actually use the PORT NBA, as seen in the next line down, we use this variable (along with the desired command and another carriage return). This way, we don't have to keep typing "Port 2" & CR & "Reply Yes" & CR over and over again. It also becomes very simple to change the script to use the printer port instead of the modem port—just change "Port 2" to "Port 1" at the beginning of the script. No other changes will be needed!

The MINISCRIPT NBA is used, in this script, to allow you to use old-style XCMDs (the precursor of NBAs) in the script. The CDPLAY XCMD is found in the XCMD Library Volume 1, from Roger Wagner Publishing. The XCMD must be in the same directory (folder) as the stack that uses it, and the CD-ROM driver must be installed on your hard drive or system disk. (This driver comes with the System Software and can be installed using the Apple Installer.)

FOR FURTHER INFORMATION

More examples of this kind of control can be found in the scripts in the Multimedia Controller stack included with *HyperStudio.* In addition, I have some scripts and example stacks of my own creation which won't fit in this article. I'll send interested readers a 3.5" disk with the examples for free—just send me a blank disk and a mailer with appropriate return postage (or, if you don't have disks or mailers handy, just send me $5).

Vern Mastel
1051 E. Interstate A
Bismarck, ND 58501

Laser Disc Command Summary

Eject (OP)
Stops the player (if it is running) and opens the disc tray.

Start (SA)
Closes the disc tray (if it is open) and starts the disc spinning. CLV discs go into Paus mode when the program area is reached. CAV discs continue to run when the program area is reached.

Play (PL)
Plays the disc. If an optional numeric parameter is specified before the command, the disc will play to the specified frame, return a completion status, and then go into pause mode. If you use the command 0 PL, the disc will play from beginning to end, not returning a completion status until the end is reached.

Still (ST)
Puts the player into freeze-frame mode (CAV discs only).

Pause (PA)
Pauses the player and blanks the video. Available only on newer Pioneer models. With CAV discs, the pause is immediate; with CLV discs, the pause occurs within one second of the command.

Scan Forward (NF) or Reverse (NR)
Moves forward or backward about 300 frames (10 seconds). Can be used only when the player is in Still or Pllay modes.

Step Forward (SF) or Reverse (SR)
When in Still mode, moves forward or backward one frame (CAV discs only).

Counter Display (DS)
Turns the on-screen frame/chapter display on or off. 1 DS to turn on, 0 DS to turn off.

Video Display (VD)
Turns the video display of the player on or off. 1 VD to turn on, 0 VD to turn off.

Audio (AD)
Tells the player which channels (if any) to play. 0 AD for Mute (no audio), 1 AD for left channel (channel 1), 2 AD for right channel (channel 2), and 3 AD for stereo (both channels).

Forward Multispeed (MF)
Plays the disc forward at specified speed. Example: MF 120 SP CL plays the disc forward at double speed. (See Speed, below, for the various speed settings.)

Reverse Multispeed (MR)
Plays the disc backward at specified speed. Example: MR 120 SP CL plays the disc backwards at double speed. (See Speed, below, for the various speed settings.)

Speed (SP)
Sets the player to the specified speed. Fast and slow speeds are based on a fraction of 60. Available speeds are 240, 180, 120, 60, 30, 20, 15, and 10. Quarter speed is 15 SP (since 15 is one-quarter of 60); double-speed is 120 SP (since 120 is double 60).

Clear (CL)
Begins playback in the direction selected by MF/MR, at the speed speed selected by SP. Normally the MF/MR, SP, and CL commands will be used in a sequence.The disc must be in Still or Play mode. (CAV discs only.)

Chapter (CH)
Selects frame access mode. Usually used with Search (below), as in CH 6 SE (which moves to chapter 6). (CAV discs with chapter encoding only.)

Frame (FR)
Selects frame access mode. Usually used with Search (below), as in FR 0 SE (which moves to frame zero). (CAV discs only.)

Search (SE)
Moves to the specified chapter or frame. To be absolutely certain you are accessing by the desired method, use CH or FR to select the access mode, as in FR 0 SE or CH 6 SE.

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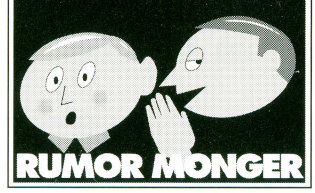
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Keeping our head in the clouds and our feet on the ground, we print only the freshest gossip. If there's not enough gossip, we make some up! This column is provided for entertainment value only, much like Star Trek: Deep Space Nine (except that DS9 has better special effects).

ECON HARDWARE TAKES A HIKE

In the last issue of *II Alive,* we mentioned the new X Drive, announced by Econ Technology. As it turns out, the X Drive will not be headed for your Christmas stocking. Econ has decided to get out of the hardware business and concentrate on software. The SoundMeister Pro will also go unreleased. While the loss of Econ's hardware solutions (especially the SoundMeister Pro) weighs heavily on the RumorMonger's otherwise Grinch-like heart, it's good to know that the next versions of *Universe Master* and *AutoArk,* and their new program *Addressed for Success,* will be released that much more quickly. Addressed for Success isn't just another "contacts" data base program—it will sport, among its other features, the ability to include Postal Bar Codes on labels to speed your mailings through the Post Office. It's the best delivery I can find for twenty-nine cents—the only better deal is e-mail.

SCULLEYWATCH™

John Sculley has resigned his post as Chairman of Apple's Board of Directors and is no longer employed by Apple. Robert Puette, the United States Division Manager, has resigned as well. Apple claims that the resignations were just part of their restructuring process, but former Executive Vice President Albert Einstat, who resigned last month, has filed a lawsuit against Apple charging that he and Sculley were forced out by the new CEO, Michael Spindler.

So what's happening to Dear John? He's the new CEO of Spectrum Information Technologies. (Bet Seven Hills Software likes that name.) Spectrum produces wireless data communication products that connect modems to cellular phones. If you're considering a Newton, you may hear from them. Just imagine the next corporate statement from Sculley: "We will continue to support the fax machine as long as demand continues..."

APPLE STOCK, PROFIT, & POWERPC

Apple reported that while it has enjoyed the highest quarterly sales level ever, its net profits are less than three percent of last year's figures. This has sent Apple stock into a bit of a slump. The company is seen by Wall Street as a bad investment at the moment, with the recent staff changes—and even an auction to liquidate discontinued models—interpreted as last-ditch efforts to keep the company solvent. Not all the news, however, is bad. With the development of new technologies like Newton Intelligence and the forthcoming PowerPC, Apple is poised for survival and even growth.

The PowerPC is a fast processor chip developed jointly by Apple, Motorola, and IBM, and will power the next generation of Apple and IBM personal computers. Even though the PowerPC is not compatible with the 680x0 microprocessor used in the Mac, it's so fast that even running a software-based Mac emulator, the chip is about the same speed as today's Quadras. Native PowerPC programs could be more than twice as fast as equivalent Mac programs. And that's only the first PowerPC chip—faster ones will follow. If it'll run a Mac software emulator at Quadra speeds, can you imagine how fast an Apple II (or better yet, a IIGS) emulator would be? No word from Apple on whether it intends to develop such an emulator, but at least one third party is investigating the possibility.

The RumorMonger offers the humble opinion that it would be a great idea to give IIGS users a true upgrade path instead of making them buy not only a new computer but new software as well. It will probably never happen, but it's a nice thought, isn't it?

APPLE CATALOG ENDS IIE "SPECIAL"

The Apple IIe "special" is conspicuously absent from the latest Apple Catalog. So I donned my deerstalker cap, grabbed my pipe, and went on a fact-finding mission. I found out that while the Apple Catalog is published by Apple Computer, the catalog does not carry every single Apple product. Low sales were to blame for the removal of the Apple IIe from the catalog, although the computer is still available through educational dealers. Of course, if you saw the price of a complete IIe system in the last catalog (nearly $1400), you know why sales were low. You can get a used Apple IIe in the same configuration for under $500 in the used or reconditioned market. Add another $125 or so for 1-year AppleCare coverage, and you've got the equivalent of a brand-new machine. What a deal—especially considering that nobody is developing viruses for the Apple II anymore!

SOUP UP YOUR SUPRA

Owners of the SupraFaxModem v32bis (and the equivalent Quality Computers Q Fax Modem) can get a new ROM upgrade. You can install it yourself if you've ever put chips into your computer. To find out how much the upgrade will cost, you need to find out the current ROM version of your modem. Get into terminal mode with your telecommunications software (that's Option-T or Solid-Apple-T for *ProTERM* 3.x users) and type ATI3 followed by Return. The modem will respond with its ROM version You will also need the serial number (on the bottom of the modem). For some modems, the upgrade is $20.00. For the Q Fax Modem or older Supras, the upgrade is free. Call Supra at 1-800-727-3658 for the upgrade or to find out if your modem qualifies for a freebie.

PROTERM MAC?

Speaking of modems, InTrec, publisher of the best telecom software for any computer (in my humble opinion) is now in the early testing stages of *ProTERM* for the Macintosh. The features are not final at this point, but according to sources at InTrec, *ProTERM* Mac will have the same basic features of *ProTERM* for the Apple II while taking advantage of the Mac's extra capabilities. After *ProTERM* Mac is released, InTrec is planning an MS-DOS version as well. The Apple II will not be forgotten, though—expect features implemented in the Mac and MS-DOS versions to "trickle down" to the Apple version. GEnie, America Online, and the Internet all have lively discussions about possible features for the next Apple version. (Fax support is not a likely feature at this time, our sources say.)

InTrec advises *ProTERM* Apple users who buy a Macintosh or MS-DOS clone to hang on to their *ProTERM* package. There will be an upgrade from the Apple II to Mac or MS-DOS versions, but you'll need your original disk to get it. Hats off to InTrec for allowing cross-platform upgrades. If the software won't work on your new machine, at least you'll get a discount on the new program.

DEEP THOUGHT

While playing with the glasses that came with *3D Logo* for IIGS, I had a strange idea. The glasses, as you may know, have one red lens and one blue lens. Blue parts of the screen appear as black through the red lens and vice versa, which allows the computer to draw separate images for each eye and produce a three-dimensional image.

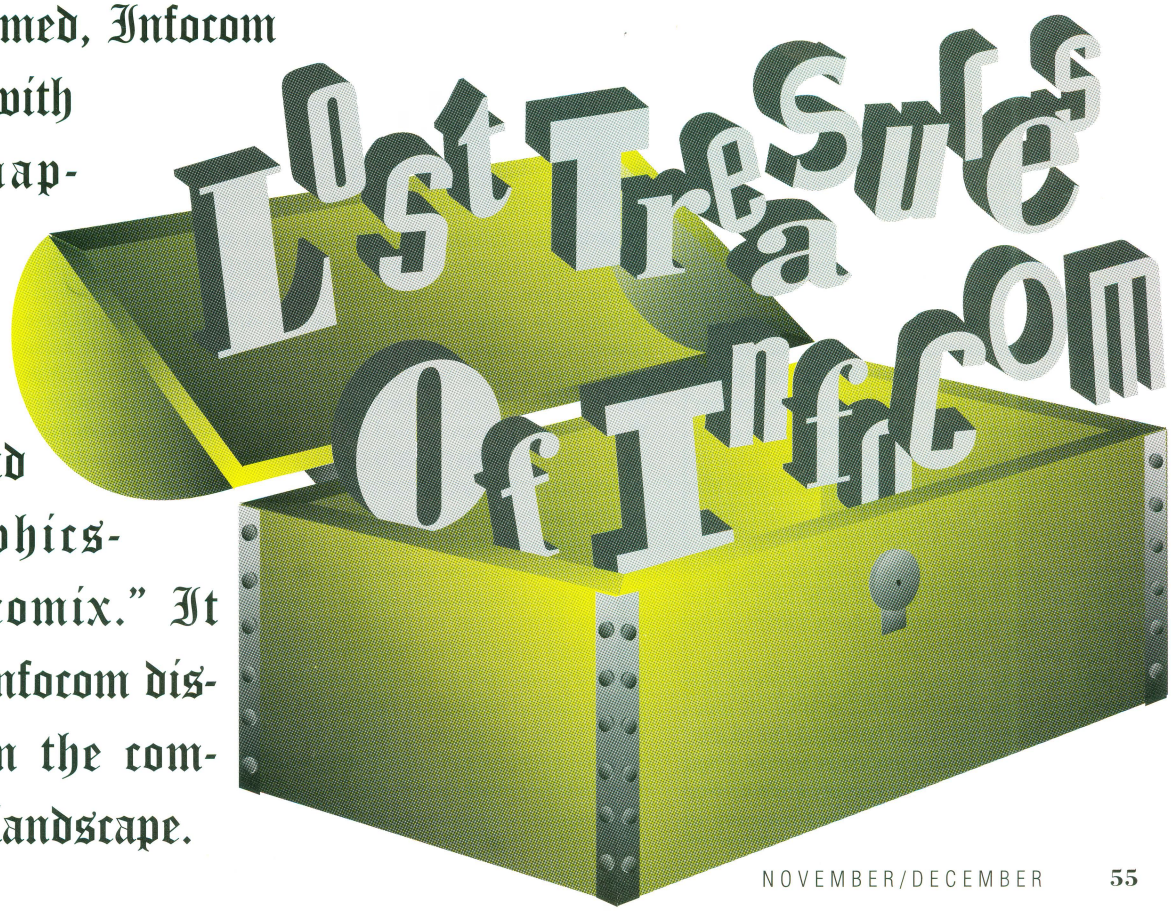
What would happen, I wondered, if I adjusted the convergence of my IIGS monitor so that the red and blue beams did not meet in precisely the same spot, and then set the text color to purple in the IIGS Control Panel? Would I then have AppleWorks 4.0 3D with text floating over the keyboard? Is this what they meant by 3D spreadsheets? Kids, don't try this at home. ■



Rediscovering the Lost Treasures of Infocom

by Douglas Cuff

Once upon a time, there was a company called Infocom. Infocom published outstanding computer adventures for people who liked to read—and think—and make pictures in their heads instead of settling for the comparatively poor resolution of the Apple //'s high-resolution graphics mode. Sadly, as more and more game makers put pictures on the screen, sales of Infocom's text-only games slumped. Alarmed, Infocom experimented with on-screen mapping and tried to diversify, releasing a board game and several graphics-heavy "Infocomix." It didn't work. Infocom disappeared from the computer gaming landscape.



There our story might have ended. But it didn't, and still hasn't. Infocom was acquired by Activision—and now, Activision has released *The Lost Treasures of Infocom*—20 text-adventure classics in one bargain-priced package! Big Red Computer Club gets the credit for dickering with Activision and doing the software design for the IIGS version of *Lost Treasures.* The package contains a program disk, three disks of game data files, a manual, a hint book, a shrink-wrapped packet of maps, and a IIGS reference card.

You get the three original Zorks, plus sixteen more games which span the realms of mystery, fantasy, and science fiction. "Hmmmm," you say, "that's nineteen. The box says there are twenty. What happened?" Well, Zork Zero is omitted because it has graphic puzzles that require a game interpreter Big Red couldn't license. Big Red promises to send customers a free update if they ever succeed in getting this interpreter.

If all this talk of interpreters and data files confuses you, you should know that Infocom games have two parts. The interpreter is the program that reads the data files and handles your commands. Infocom wrote one interpreter for each computer their games could run on. The data files contained all the information that made each game unique. This scheme allowed Infocom to bring out versions of its games for all computers very quickly, and also reduced the process of creating an adventure game from a daunting programming task to more manageable proportions, thus allowing the input of creative non-programmers like Douglas Adams (author of the *Hitchhiker's Guide to the Galaxy* books).

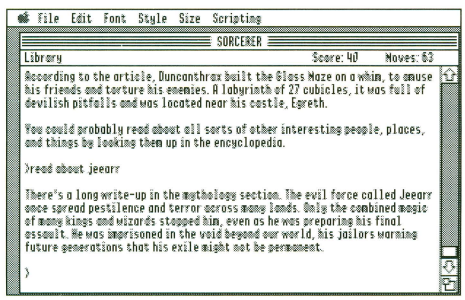
Infocom never had a IIGS-specific version of its interpreter, so Big Red took on the task. While they only needed to program one IIGS interpreter to allow the play of all nineteen games, they ended up making two. Both were written in ORCA/C by Mike Howard and John Wrenholt, and both allow you to save and restore as many games as you have disk space for and to print a transcript of your game.

The first, or "Standard," interpreter is a IIGS Desktop program. You can play games in any font style and size installed in your System folder. The program sports an 8K scrollback buffer, which lets you review a few screens' worth of recent game activity simply by clicking the familiar scroll bars. This "history buffer" is saved with your status when you type "SAVE." The Standard interpreter, however, has two drawbacks: first, if you don't have an accelerator, it's a little on the slow side; and second, it won't play two of the games on the disk—*Hitchhiker's Guide to the Galaxy* and *Beyond Zork.*

The second, or "Advanced," interpreter is a much faster program which can play all nineteen games, but does not allow you to change the font or review your previous moves. (You do have a choice of black text on white or vice versa, and there's also on-screen mapping in Beyond Zork.) The Advanced interpreter also doesn't support the mouse, and it does not recognize the IIGS's numeric keypad (particularly annoying at the start of *The Lurking Horror).* One nice feature found only in the Advanced interpreter is the "switch game" option—if you get stuck in *Zork I* and want to try *Planetfall* for a while, you can do so without having to quit and reload the interpreter.

The package's bargain price means that the collection omits the nifty "extras" that gave Infocom games so much of their personality—artifacts such as "Don't Panic" buttons, *Moonmist* iron-ons, *Stationfall* shoulder patches, and Zorkmid coins. The documentation also lacks color, and you have to settle for reproductions of all the little bits of printed material, like cards and newspapers.

Documentation is particularly important to *Lost Treasures* because, in its later years, Infocom abandoned traditional copy-protection schemes and provided crucial game elements in the packaging itself. The theory was that software pirates would copy only the disks—not the letters, tickets, badges, and so on. For instance, I once ran across a frustrated pirate who wanted to know what you had to do with the circus ticket in *Ballyhoo* to get through the turnstile. (The game taunts you a little, saying that you have to follow the instructions printed on the reverse of the ticket.)



The 270-page manual included with *Lost Treasures* aims to duplicate all critical packaging elements. Most of these materials are reproduced faithfully, but a few pieces seem to be missing. There's no denying that omitting Tamara's letter, while admittedly not crucial to solving the game, subtracts from the atmosphere of *Moonmist.* An abbreviated newspaper in *Witness* removes the challenge of sifting out the key information. As for the *Ballyhoo* ticket, the printing process failed to reproduce the light blue "M" (for "male") punch-out option, which may cause some confusion.

The parser, of course, is the crown jewel of every Infocom adventure. To talk to these games, you can type in real English sentences like TAKE THE GREEN SPELL BOOK THEN OFFER IT TO THE WITCH. Infocom's programming imps worked long and hard on the game's parser so you can have fun playing the game, instead of wasting time figuring out the exact word the program wants. Even so, the original releases included Recognized Verbs lists and usage examples for each game.

Presumably to save space, the list of verbs you can use is not reproduced game-by-game in *Lost Treasures.* Instead, there's a list of commands that apply to all the games at the very front of the manual. Some special terms (like "OOPS") are mentioned in the coverage of games where they are usable; still, way too much is left to be discovered by the player. For instance, it is helpful to know that BURN, FOLLOW, LOWER, SLIDE, and TIE work in *Sorcerer. Ballyhoo* players who do not somehow guess that SIDEWALL is a valid "verb" will experience unnecessary frustration. The original Hitchhiker's' is made easier by the hint in the manual that WHO AM I? is a valid question to ask the game. As for casting spells, don't look here to find out that one must first MEMORIZE, *then* CAST!

The most serious documentation error is omission of the final page of the *Ballyhoo* souvenir circus program. In the original Infocom release, this back cover presents an advertisement from WPDL 1170 AM, "America's foremost classical AM radio station." Without this clue and the information to act upon , you may find it all but impossible to finish the game without resorting to the hints book. Happily, as a *II Alive* reader, you now know that the ad advises you to "... tune in to music that soothes the savage beast!"

Infocom's original hint books were published as "InvisiClues," which used a special pen to make the invisible clues "appear." This made it remarkably easy to get just the help you need without your wandering eyes glimpsing another clue you didn't want. The *Lost Treasures* hint book does not use this (admittedly expensive) method. Instead, it relies upon a largely successful page design: the questions to which you might be seeking answers are printed in large, bold type and the answers in smaller, plain type. The method works, mostly—it takes surprisingly little discipline to cast your eyes over the questions quickly and avoid answers you don't want—but there are a few flaws. On page 178, for instance, the hint "Map carefully" is printed in boldface! Three lines above that, so is the final "hint" (an outright answer, actually) to a puzzle.

If you have a hard drive, starting *Lost Treasures* is as simple as copying the interpreters and data files to a folder on your hard drive and double-clicking an icon. Otherwise, you can boot your 3.5" System Disk and launch an interpreter from the Program diskette. To start an adventure, you just select its title from a pull-down menu. The selected game's data is completely loaded into memory (greatly speeding play compared to the old floppy-based versions!) and the adventure begins.

As enjoyable as these games are, and as grateful as I am to Big Red for producing an Apple IIGS version of this anthology, I feel that the packaging lets the games down. Except for the documentation, I'd recommend *The Lost Treasures of Infocom* unhesitatingly. Fortunately, these classics earn high marks anyway, even with the flaws, and the price can't be beat.

THE GAMES

Infocom text adventures are great fun, and there aren't any complete dogs in this package. The best games for beginners are *The Lurking Horror, Planetfall,* and *Moonmist.* The games I would recommend for experts only are *Deadline, Hitchhiker's Guide to the Galaxy,* and *Suspended.* Mini-reviews with difficulty ratings follow.

FANTASY

Zork I (The Great Underground Empire) Where it all began. The first of three parts of an underground treasure-hunt, all of which originally were once a single game called Dungeon. Still a good game, though many of the puzzles now seem arbitrary. *(Intermediate)*

Zork II (The Wizard of Frobozz) The treasure hunt continues, but this time you have to contend with the Wizard of Frobozz, who makes it much more fun. Very good, with more logical puzzles than in Zork I. *(Advanced*

Zork III (The Dungeon Master) It's no longer a treasure hunt and the puzzles are harder to solve. The game seems barren to start with, and the scoring may confuse some players. *(Advanced)*

Enchanter Good intro to a new "Zorkian Realms" trilogy stressing puzzles and magic. You've been chosen to defeat the evil Krill because your magic powers are so weak that you won't be considered a threat. Unfortunately, this also means that your days are probably numbered... *(Intermediate)*

Sorcerer In this sequel to *Enchanter,* your magic powers have grown—a fact which comes in handy as you attempt to rescue Belboz and defeat a demon. Long-playing, with more and trickier puzzles, it ranks among the best from Infocom. *(Advanced)*

Spellbreaker The third in the *Enchanter* series challenges you to save Magic itself. Tough, because spells are unreliable; but some nifty White Cubes are a big help. Beware of wasting your Time Stop scroll. *(Expert)*

Beyond Zork A good sequel to *Spellbreaker* which challenges you to restore Magic by finding the Coconut of Quendor. Your character has D&D-style attributes and must fight as well as solve puzzles. *(Advanced)*

MYSTERY

Deadline You have 12 hours to solve a locked-room murder (or is it?) mystery. When questioning characters, you're very aware of talking to a parser. Fairly good, with slow progress but a satisfying solution. *(Expert)*

Witness Freeman Linder asks you to visit him about being blackmailed, but you fail to prevent his murder. This is a fair 1930's Philip Marlowe-style case. *(Intermediate)*

Suspect You're a reporter covering a Hallowe'en party. When the hostess is discovered dead, you're the prime suspect and must clear yourself before the police arrive. The socialites are fun to interact with, and the mystery keeps you involved. *(Advanced)*

Ballyhoo The daughter of the circus owner has been kidnapped and it's up to you to save her. Just a fair mystery/puzzle-busting challenge with too many unconvincing solutions. *(Intermediate)*

Moonmist A friend has called you to Tresyllian Castle on Cornwall's coast to deal with an unfriendly ghost. You can play as either a man or a woman, and the game has four variations. Look for enticing Nancy Drew-style adventuring; very good for newcomers. *(Introductory)*

SCIENCE FICTION

Starcross As an asteroid miner in the 22nd century, you discover an abandoned spaceship from another culture. I've never finished this one, but it looks like a fair adventure. *(Expert)*

Suspended (A Cryogenic Nightmare) Only a fair game, but a breathtaking concept: you've been cryogenically preserved (read *frozen)* and are awakened when something goes wrong on your spaceship. You must use six specialized robots to discover and fix the trouble. The parser is more difficult to get used to than usual. *(Expert)*

Planetfall Infocom's remaining science fiction titles all have Steve Meretzky's light touch. This one features Floyd, a robot child, who is the most charming creature I've encountered in interactive fiction. When your spaceship has an accident, you manage to make it to a deserted scientific complex and... *(Intermediate)*

Stationfall The sequel to Planetfall lands you and Floyd at an abandoned space station which is more fun than ever to explore. But then Floyd begins acting strangely! *(Intermediate)*

The Hitchhiker's Guide to the Galaxy Minutes after heartless city workers destroy your house, even more heartless aliens destroy the Earth. In this hilarious scenario, you escape and end up playing many roles. Not much to map, but a good adventure with tough puzzles. *(Intermediate to Advanced)*

TALES OF ADVENTURE

Infidel Your character is something of a scoundrel who has come to the deserts of Egypt in hopes of looting an undiscovered pyramid. Look forward to a good challenge and several clever puzzles. *(Advanced)*

The Lurking Horror An all-nighter to finish a term paper turns nasty when the computer mysteriously swallows your only copy. Good, with lots to explore in the thinly-fictionalized MIT setting. Readers of Steven Levy's *Hackers* will find the game has a special attraction. *(Intermediate)* ■

TREASURES ON ANY APPLE II

When the MS-DOS and Macintosh versions of *The Lost Treasures of Infocom* became available, programmer T. A. Phelps was champing at the bit for an Apple II version. He knew the game data files were interchangeable, so he set about getting an interpreter. Phelps succeeded, which turns out to be especially good news for IIe and IIc users who want to access the LT collection. The Phelps package is freeware called *InfocomPro.*

Even after buying *Lost Treasures,* you're in for quite a challenge. Your first assignment is to find a Version B interpreter on an old Infocom game disk—try a 1984 release, like Sorcerer—and move it to a ProDOS diskette. This is not exactly for the non-technical but, for legal reasons, is necessary (Phelps cannot distribute the interpreter because Activision owns the rights). I followed the instructions supplied in the *InfocomPro* documentation, but on the first test my copy crashed! Using a disk editor, I found that the first two bytes had been zeroed! Changing them to "D8 A9" fixed the problem.

The last step is to move the *Lost Treasures* adventure data files to IIe diskettes and change the filetype and auxtype for each to $06/$0000 using a program like *FAZ II.* You should be able to play all of the games except *Zork Zero, Beyond Zork* and *Hitchhiker's Guide.* (Also, though you can finish *Lurking Horror,* it may crash a few times along the way.) A nice plus is that the old 8-game limit on saves is gone. You can have as many saved games as your disk can hold.

Even better, transfers can go both ways. IIgs *Lost Treasures* owners can move data files from DOS 3.3 versions of games like *Hollywood Hijinx* and *Leather Goddesses of Phobos* and play them like other *Lost Treasures* scenarios using the Big Red interpreters! (You must change the file type to $F5 and auxtype to $8003.) *InfocomPro* is available on GEnie's A2 RoundTable (download INFOCOMPRO.BXY) and from other sources.

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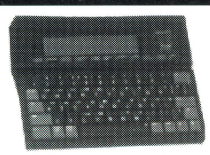
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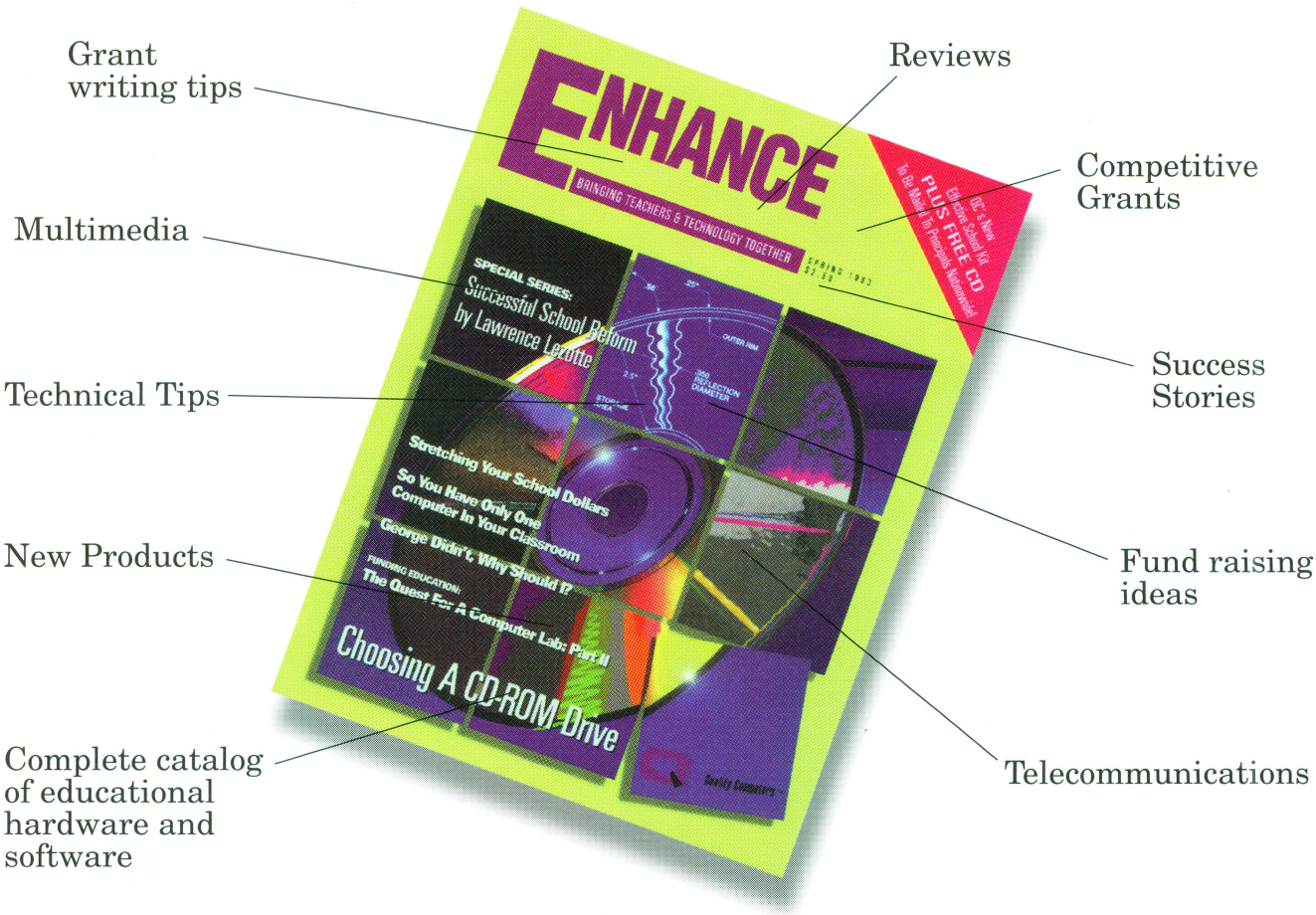
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Contact: Manuel Turtula



The Lost & Never Found

by John David Sidley

This essay was lost. Too bad, too, because it was pretty good. Why, right about in the middle I was really cooking with this funny story about a computer malfunction, when suddenly...

What's that you say? How can this essay be lost when you are reading it right now? Well, my gentle friends, you are not reading the essay I started to write. What you are reading the essay I wrote after I wrote the essay you will never read. Got that stored in your temporary RAM?

No? OK. A little prerequisite information, then.

You see, I'd been commissioned to write this article—well not this article, but an article—which was to be published in this magazine, probably right here in this very space. A computer science student friend of mine had suggested the idea. Then I had discussed the concept with a few other people, mulled it over in my mind, and finally sat down to write the article.

Since it was to be a simple short, funny article, I figured I could do it in one evening. I booted up my word processor and put in my data disk, dove into insert mode, and started to cook. I chugged RC Cola and crunched salty pretzels—I'm not a purist—and knocked out the first draft in a couple of hours. Then I reviewed the article in edit mode, and was about to print it out, when suddenly...

Only God and Steve Wozniak know what happened next.

All I know is that somewhere between my "save" command and my "print" command, the orders got confused and this terrifically funny little essay (or rather, that terrifically funny little essay) became only a fuzzy memory in the mind of an RC-Cola'd-out writer.

I tried to call it back, but it didn't answer. I struck every key code in the manual, plus a few I made up. Nothing. Then, I tried everything I had already done all over again, then once more for good luck. But there was no good luck to be had.

It was gone... gone... gone forever.

The next day, I ran into my computer science student friend who had suggested the idea for the article and poured out my sad story to him.

It was then that I learned that stories of lost data are like tales of trips to the hospital. No matter how heart-wrenching your story may be, the person you're telling it to can go you one sadder.

My friend told me about his final exam program that he saved but couldn't recall. Like a bride in a bathroom, it was there, but he couldn't get it out.

Then, from his friends, I heard more horror stories—lost forecasts, vanished mailing lists, and gone-forever financial analysis. Where did they go, we all wondered? Would we ever see or hear from them again? Would we meet them in heaven with the angels? Or, in the case of the financial analysis, would we meet them in the other place?

It was during one of these discussions of spiritual electronics that a young man told me about the Lost and Never Found.

"The what?" I asked.

"The Lost and Never Found," he repeated. "It's a place where lost data is turned in and reclaimed. It's a free service. All you have to do is identify your data and take it home."

"No kidding!" I exclaimed. "Well, lead on, my friend! Where do I find this place?"

"At city hall. It's in the basement."

Yes, of course I was skeptical. But I had nothing to lose—having already lost it—so I hustled to the mall and asked an attendant at the information booth, who pointed to a tattered cardboard sign on which was drawn a hand with an extended index finger pointing downward.

Next to the hand were the words "Lost & Never Found."

At the bottom of the basement corridor was a large open window with a counter below it. A sign above the window confirmed that this was, in fact, the Lost and Never Found. In the cavernous cluttered room behind the opened window was a portly older gentleman in a white shirt. His sleeves were rolled up and his necktie was loosened at the collar. A half-smoked cigar dangled in the corner of his mouth.

"Lookin' for somethin' or leavin' it behind?" he asked, without looking up from the boxes he was rearranging on the floor.

"I'm looking," I said, "for an essay I wrote last night. I lost it right before I was going to print it out. I'm not sure exactly what happened. All I know is..."

"How long was it?"

"Huh? Oh, about five pages, double-spaced."

"Bytes. I need bytes. Don't catalog lost data according to pages. You gotta give me bytes."

"Oh sure. I keep forgetting. Ah... I guess about three thousand. That's about right. About 3K."

"Regular chip off the old motherboard, huh? Well, we'll see what we can do," he said, kicking one of the boxes aside and finally coming over to the window. "Now, you say you lost this last night?"

"Yes, about ten, ten-thirty."

"Hmmm. I got a few essays turned in here during my shift. Could you describe it?"

"It's funny."

"Hey, aren't they all? Especially the ones that tell you how easy it is to make your dot-matrix printer spit out a black-and-white likeness of the Playmate of the Month. They never tell ya she always comes out lookin' like Mickey Mouse. Har. Har."

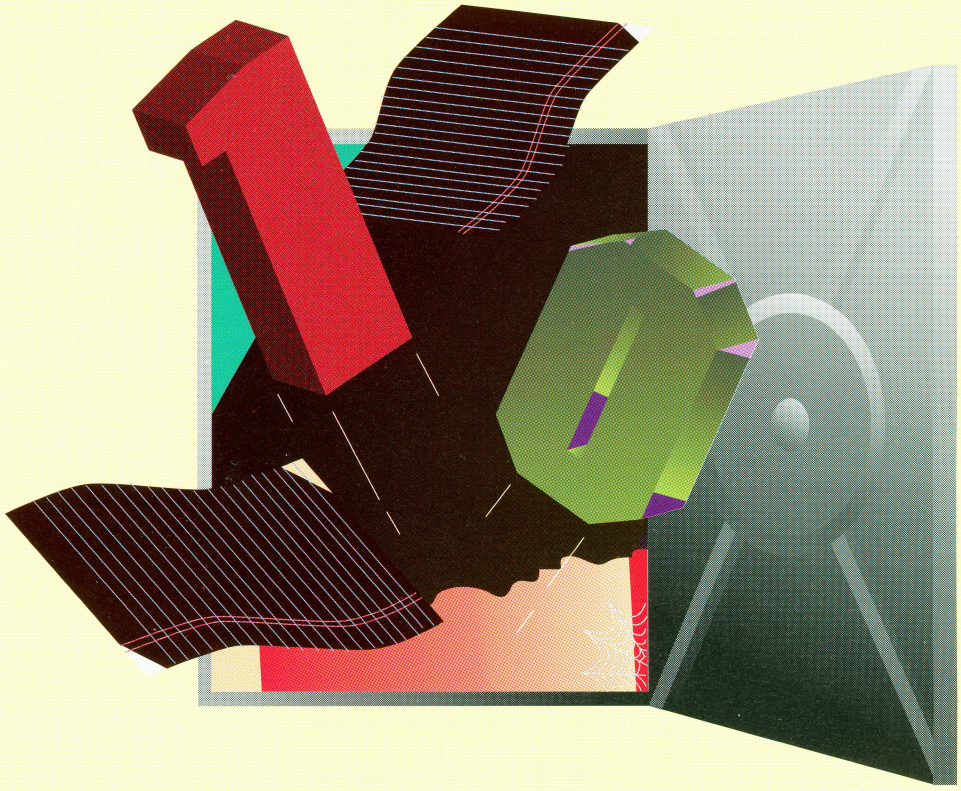
(That's how he laughed, really!)

"Well, fortunately, that's not it. And if it were, I don't think I'd be bothering to look for it," I said. "Mine is just an innocent, funny essay about computer malfunction."

The portly old gentleman scratched the stubble of beard on his chin in an imitation of thought, then waved his hand at me.

"Come on in," he said as he opened the half-door next to the window counter. "We'll have a look around."

The room looked like a blind man's attic. Everything was non-arranged according to how much it would contribute to the chaos.



"Need a left glove?" asked the old portly gentleman, as he kicked another brown box out of his path.

"No thanks."

"We got tons of 'em. Left gloves, disposable pens and cigarette lighters, umbrellas, and wrinkled raincoats. Everybody loses 'em."

"Just my story," I said. "That's all I lost."

"The funny one. Right?"

"As rain."

"Well," he said, "if it's here, we'll find it."

There, behind a box marked "Left Gloves, March to April 1984," was an enormous old green monitor. The portly gentle older man cleared some debris off the keyboard and booted the machine. Within moments, he began calling up all sorts of seemingly unrelated data.

"Need a tax return?" he asked as a spreadsheet appeared on his screen. "Looks like a healthy refund on this one."

"Then it couldn't be mine."

"Just think, this poor schmuck is trying to explain to the auditors how his return got lost inside his computer. Har. Har."

"Did you see my story yet?"

"The funny one?"

"Right."

"Gonna have to go some to be as funny as this tax return."

"Har. Har," I said.

We kept on looking together. Articles, games, tests, graphic designs, tutorial programs, and even dot-matrix configurations of Mickey Mouse that were labeled Playmate of the Month flashed and rolled before our blinking eyes.

We found pirated copies of programs and we saw programs elementary school kids had made up that solved nothing and then got lost. We found form letters and we saw pie charts with whole slices missing. We found home programs that had disappeared in a flash and left their users in open-mouthed shock.

They were all here. All the horror stories I had heard had been true. I saw my friend's final exam. I found the lost forecasts, the vanished mailing lists and the gone-forever financial analysis. They were all here... all except...

Beep. Off. I stared at my reflection in the sullen green monitor, ASCII characters dancing before my eyes in the sudden darkness.

"Sorry," said the gentle old portly man, who for the first time removed the half-smoked cigar from the corner of his mouth and made a sucking smacking sound with his tongue and teeth. "Guess it's still out there somewhere."

I nodded. I thanked him for his time and he shrugged.

"Just doin' my job, young fella," he said. "Don't despair. Maybe it will turn up yet. Sometimes folks find data lying around, remove a few bits of information they can use themselves, and turn the rest in—anonymously, of course. No. You never can tell about lost information. They say a computer is alike a brain, you know. I believe that, really do. And brains forget things just like the computer loses things. But did ya ever notice how old people, especially, will be able to remember the tiniest detail of somethin' happened to them when they was kids? I mean, somethin' that they thought they forgot! Well, just you wait. When your computer gets of an age, it will start remembering again, and I bet your funny story will show up one day just as clear as the day you wrote it."

I smiled and shook hands with him as he opened the half-door to let me out. And for a moment, just for a moment, I actually believed what he said. It occurred to me that I had completely lost my mind. Perhaps I should ask the portly older gentleman if he knew where it was, I thought.

I never did find my funny story about computer malfunction. So I wrote this one instead. As a matter of fact, I wrote it that same evening upon my return from the Lost and Never Found. I mulled it over while I drove home and had practically written it in my mind by the time I pulled into the garage, turned off the ignition, grabbed my briefcase off the seat and realized... I had lost my left glove. ■

(Continued from page 49)

WESTERFIELD: The single most important quality in a good programmer—and maybe the *only* important one—is that the person really has to *like* programming. Without that, it's just a boring job. With that quality, you can literally do anything, although it may take some people longer than others. It helps for some kinds of programming to have a good background in math. But depending on the kind of programming you want to do, it can be just as useful to have a good background in art, literature, science, history, or just about anything else.

In the old days, there were programmers, the people who warmed pizzas on the monitors at midnight to get good computer time, and users, the people who ran programs other people wrote. That's no longer true. *HyperStudio* is one example of a programming environment that you can use without doing traditional programming (although traditional programming is available through *HyperLogo* if you want it). C and Pascal put traditional programming within the reach of anyone who has a few hours a week to invest. Anyone who wants to create programs can do it, now. *Anyone.* All you need is the desire.

II ALIVE: What type of programs should a beginner start with? And what language is best?

WESTERFIELD: Write what *you* want to use. It's a lot more fun that way. That's not the best way to design a *commercial* product, but it's the best way to get started in programming, and the best way to keep yourself interested.

The best language really depends on your goals. If you're doing multimedia, the learning curve is fairly shallow. *HyperStudio* and *HyperCard* are great places to start. If you want to do graphics or artificial intelligence, Logo is a good place to get going. If you want to write fast, efficient programs that do more than present information, you probably want to learn C or Pascal. For high-quality animation, the kind you see in arcade games, you need to learn assembly language. That's tough, but the things you can do once you know assembly are astounding. So the first step is to decide what you want to do, then pick the tool that will let you create your program as quickly and easily as possible.

II ALIVE: What are the most common pitfalls programmers fall into?

WESTERFIELD: The path is littered with pitfalls! The first thing a programmer must learn is humility. The machine just doesn't make mistakes, unless it's malfunctioning, and the software doesn't make them nearly as often as we want to think. People make mistakes. Programmers always has to remember Lubarsky's Rule of Cybernetic Entomology: "There's always one more bug."

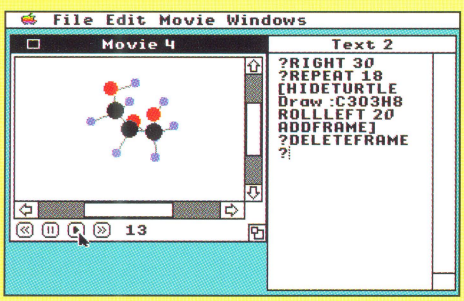
The other biggie is that the program has to be written for the customer, not the customer bent to the program. That's the toughest for most people. If you are writing the program for yourself, fine—but, if you're writing for others, you have to listen very carefully to what they want. The customer isn't always right, or even rational. But you have make sure that if you do something besides exactly what the customer wants, it's for a darn good reason! The customer should never have to learn to work a different way just to use your program.

II ALIVE: Well, Mike any parting words?

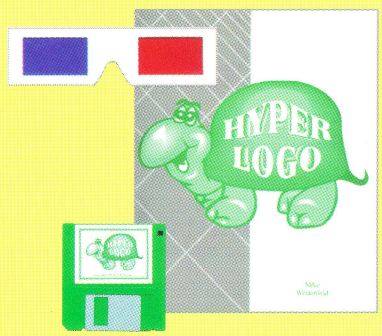
WESTERFIELD: I have a request. I collect old computer punch cards, especially ones with interesting logos. I'm always looking for some generous soul to send the card he's been using for a bookmark since 1978. Used or unused; it doesn't matter! ■

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All Apple II

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Hundreds of new software titles are published for the Apple II every year—from shareware to major commercial products. AppleWorks is the biggest selling, most widely used program of all time. More than 50% of computers used in American schools are Apple IIs. The Apple II can do everything that comparable computers can do. There is now a magazine dedicated to this marvelous machine.

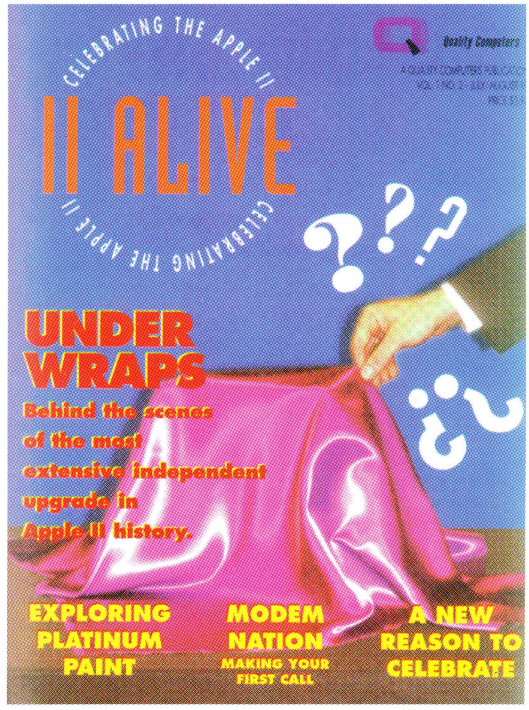
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Dear Friends,

1993 was another terrific year for Quality Computers and the Apple II community. With the introduction of *II Alive,* the release of AppleWorks 4.0, and IIGS System 6.0.1, there's still plenty happening for the Apple II.

We started *II Alive* to support the Apple II community while strengthening our focus in multi-platform educational technology. *Enhance* is still being sent to educators across the country, and we're introducing a new *Enhance Plus* program which will provide educators with other valuable services along with their subscription. Our educational sales are up 300%—yet we haven't abandoned the Apple II. Our Apple II sales are holding steady, and our customers continue to compliment us on our outstanding service and support.

It's largely been your word-of-mouth advertising which has allowed Quality Computers to continue to grow. So here's some more news for the grapevine. We have great plans for 1994. Since we're now the publisher of AppleWorks GS, we're scheduling an upgrade for that program by Spring. We're also currently investigating the possibility of creating a true no-compromise Apple II emulator for the upcoming PowerPC-based computers from Apple, so you can run your Apple II software on the next generation of computers.

On a more personal note, I've become more and more aware recently of the responsibility all of us have for protecting and preserving our planet. That's why, in 1993, we stopped using styrofoam packing peanuts and plastic shrink wrap, and it's why, in 1994, we're spinning off a new company—Environmental Living—to provide healthy, environmentally sound solutions for your home and your family.

If you don't already have a hard drive for your computer, now may be the right time! With a blow-out special price on the Q Drive, you can now own a hard drive for *less* than a second 3.5" floppy drive! It's just $179.95 for the 42 MB drive (requires SCSI interface card, sold separately). What a holiday gift!

Again—thanks for a wonderful year. See you in 1994!



Joseph P. Gleason
President
Quality Computers

Q-MODEMS

Fast, affordable, and designed to save schools money!

FIND IT ON-LINE!

With a Q-Modem, you can access bulletin boards and computers close to home, across the country, and around the world. You'll find airline schedules, business news, free software, gardening tips, technical help, plus everything in-between! Name any topic—you can find it on-line.

IT'S COMPATIBLE!

The Q-Modem is Hayes compatible and works with virtually any computer. It is compatible with industry-standard, intelligent "AT" commands and all commonly used protocols (including Bell 103/212A, CCIT v.22, and CITT v.22bis). Since the Q-Modem operates asynchronously at 300, 600, 1200, and 2400 baud, you can communicate at whatever rate you need to. All these features let you use the Q-Modem to connect with most modems being used today.



IT'S EASY TO USE!

The Q-Modem is very easy to use. It features autoanswer and autodial (tone or pulse) for performing phone tasks, and it has a programmable-volume speaker for monitoring call progress. Storing phone numbers and user configurations is also simple because of the modem's programmable nonvolatile memory.

You also get:

- Compatibility with U.S. and international protocols.
- Nonvolatile memory to store your configurations and frequently called numbers
- Auto-Answer AutoDial (tone or pulse)
- Two phone jacks for telephone line and phone
- Adjustable-volume speaker
- Introductory packages for on-line services
- One year warranty

All you'll need to use a Q-Modem is your computer, software, and a cable to connect the modem to your computer.



MODEM BUNDLES

Q-Modem, MicroPhone LT, and cable
MicroPhone Personal LT is the perfect low-cost solution for Mac telecommunications. It offers fast and reliable data transfer between Macs and other computers. **$99.95**

Q-Modem, ProTERM 3.1, and cable
ProTERM's intuitive operation, on-line help, test editor, Scrollback buffer and Autolearn macros. **$139.95**

Q-Modem and ProComm Plus
ProComm Plus 2.0 is a popular, powerful, easy-to-use communications software package. It includes 33 popular terminal emulations with keyboard remapping. **$139.95**

Q-MODEM

$74.95

Q FAX MODEM V.32 BIS

The Q FAX Modem V.32bis features 14,400 bps fax and data communications with up to 57,600 bps data throughput using V.42bis data compression. You also get the special advantages of Silent Answer™. optional Caller ID, and the unique alpha-numeric display panel that shows up to 26 different status messages. Comes with Fax STF, MicroPhone LT, and handshake cable.

$299.95

"Going from my old 1200 Modem to the Q-Modem 14,400 baud has saved me more time & money than any other computer peripheral I've purchased."

—Kevin Weiss—

Quality Computers™

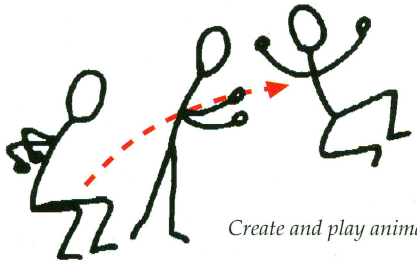
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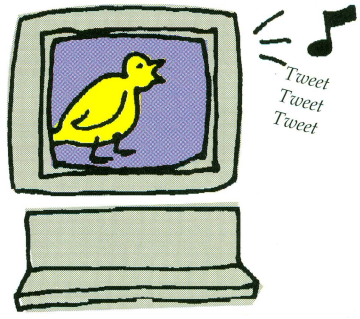
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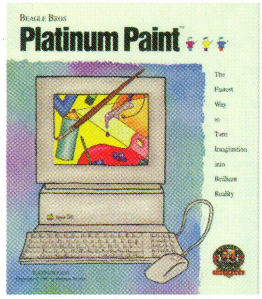
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Add sounds



Platinum Paint 2.0 is the powerful, award-winning paint program that has given Apple IIGS users the ability to turn imagination into brilliant reality. New Platinum Paint 2.0 gives you even more power and ability:

- Create and print masterpieces of any size.
- Create and play animations.
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- Hierarchical menus—easier to work with!
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